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# Consumption of
# Commercial Fertilizers and Primary Plant Nutrients
# in the United States

year ended, June 30, 1958

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# Consumption of Commercial Fertilizers
# and
# Primary Plant Nutrients in the United States
# Year Ended June 30, 1958

by

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The consumption of fertilizers and primary plant nutrients (N, $P_2O_5$, $K_2O$) is reported by individual States, the District of Columbia, Hawaii, and Puerto Rico, for the year ended June 30, 1958. Data for Alaska were not available. It is thought that less than 2,000 tons of fertilizers are being used there which are not included in these totals.

The data were compiled from information furnished by manufacturers on the tonnages of each kind and grade of product shipped to agents, dealers, and consumers in all the areas tabulated except California, Florida, Massachusetts, Missouri, North Carolina, South Carolina, Texas, and Virginia. The data for these States were compiled chiefly from the reports of the respective fertilizer-control officials. Supplementary information was supplied by State agencies and fertilizer brokers. Special inquiries were made of all known distributors and custom applicators of anhydrous ammonia and nitrogen solutions.

The quantities of N, $P_2O_5$, and $K_2O$ are based on the average analyses of samples of the products as reported by fertilizer-control officials of the respective State in which they were consumed, rather than on the manufacturers' guarantees. Thus, the overruns or underruns of nutrients from the guarantees are taken into account.

Quantities are reported as 2,000-pound tons. Although the data refer to shipments, the terms "consumption", "sales", and "shipments" are used synonymously. Actual consumption differs slightly, no doubt, from either shipments or sales.

Table 1. - Kinds of fertilizers consumed in regions and United States, year ended June 30, 1958 1/

Tons

| Kind | New England | Middle Atlantic | South Atlantic | East North Central | West North Central | East South Central | West South Central | Mountain | Pacific | Hawaii and Puerto Rico 2/ | United States |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MIXTURES: N-P-K | 336,487 | 1,622,205 | 4,227,965 | 3,045,300 | 995,486 | 1,611,294 | 570,566 | 37,023 | 290,215 | 204,828 | 12,941,369 |
| N-P | 26 | 321 | 156 | 49,765 | 140,017 | 5,459 | 32,037 | 31,534 | 80,158 | 2,112 | 341,585 |
| P-K | 30,365 | 105,584 | 178,045 | 230,400 | 67,163 | 175,412 | 28,817 | 545 | 2,992 | 3,732 | 823,055 |
| N-K | 0 | 59 | 209,753 | 429 | 79 | 3,375 | 7 | 48 | 2,253 | 31,011 | 247,014 |
| CHEMICAL NITROGEN MATERIALS | | | | | | | | | | | |
| Ammonia, anhydrous | 0 | 2,485 | 25,175 | 57,151 | 139,082 | 51,832 | 139,927 | 42,754 | 124,256 | 772 | 583,434 |
| Ammonia, aqua | 0 | 0 | 846 | 2,261 | 9,401 | 46 | 7,844 | 26,937 | 289,640 | 28,087 | 365,062 |
| Ammonium nitrate 3/ | 4,780 | 31,816 | 136,369 | 138,098 | 243,040 | 284,077 | 106,142 | 70,272 | 102,314 | 0 | 1,116,908 |
| Ammonium nitrate-limestone mixtures | 162 | 2,195 | 223,944 | 2,025 | 173 | 30,797 | 534 | 3,622 | 60 | 0 | 263,512 |
| Ammonium sulfate | 531 | 4,499 | 11,673 | 97,108 | 11,771 | 11,922 | 97,778 | 63,170 | 226,004 | 52,655 | 577,111 |
| Calcium cyanamide | 1,379 | 9,033 | 8,858 | 1,028 | 189 | 9,642 | 6,467 | 1,173 | 8,579 | 0 | 46,348 |
| Calcium nitrate | 2 | 2 | 10,118 | 115 | 0 | 146 | 132 | 11,960 | 34,788 | 111 | 57,374 |
| Nitrogen solutions | 904 | 3,692 | 83,748 | 59,373 | 82,673 | 9,420 | 22,686 | 5,668 | 56,382 | 0 | 324,546 |
| Sodium nitrate | 1,582 | 10,307 | 241,814 | 1,382 | 286 | 129,968 | 49,157 | 493 | 386 | 134 | 435,509 |
| Urea | 1,076 | 3,661 | 3,814 | 11,950 | 3,796 | 1,212 | 18,700 | 19,034 | 27,044 | 8,096 | 98,383 |
| Other | 234 | 2,214 | 872 | 2,805 | 600 | 37 | 472 | 976 | 980 | 0 | 9,190 |
| NATURAL ORGANIC MATERIALS | | | | | | | | | | | |
| Blood, dried | 3 | 29 | 35 | 0 | 0 | 0 | 0 | 19 | 2,170 | 0 | 2,256 |
| Castor pomace | 1,519 | 219 | 2,600 | 0 | 0 | 25 | 0 | 0 | 920 | 0 | 5,283 |
| Compost 4/ | 476 | 505 | 0 | 7,176 | 4,049 | 0 | 2,342 | 370 | 1,920 | 0 | 16,838 |
| Cottonseed meal 4/ | 6,517 | 183 | 1,502 | 0 | 0 | 5 | 0 | 0 | 30 | 0 | 8,237 |
| Fish scrap, meal, emulsions | 423 | 16 | 0 | 15 | 0 | 0 | 0 | 8 | 1,270 | 0 | 1,732 |
| Manures, dried | 4,630 | 13,732 | 4,215 | 7,804 | 4,383 | 1,157 | 2,619 | 2,190 | 261,786 | 0 | 302,516 |
| Sewage sludge, activated | 7,403 | 14,421 | 8,732 | 30,512 | 8,161 | 1,034 | 3,388 | 4,690 | 18,567 | 100 | 97,008 |
| Sewage sludge, other | 0 | 0 | 0 | 740 | 92 | 19 | 0 | 265 | 35,621 | 0 | 36,737 |
| Tankage, animal | 7 | 410 | 1 | 0 | 0 | 0 | 0 | 0 | 1,450 | 0 | 1,868 |
| Tankage, process | 3,366 | 7,751 | 3,779 | 397 | 1 | 0 | 0 | 0 | 0 | 10 | 15,304 |
| Other | 751 | 138 | 1,015 | 0 | 0 | 0 | 8 | 100 | 3,461 | 0 | 5,473 |
| PHOSPHATE MATERIALS | | | | | | | | | | | |
| Ammonium phosphate: 11-48 5/ | 0 | 454 | 45 | 9,628 | 45,025 | 11 | 3,539 | 9,158 | 14,111 | 1,095 | 83,066 |
| Ammonium phosphate: 13-39 5/ | 0 | 0 | 0 | 220 | 18,372 | 24 | 14,935 | 5,759 | 6,166 | 0 | 45,476 |
| Ammonium phosphate sulfate: 16-20 5/ | 0 | 0 | 0 | 948 | 74,635 | 73 | 67,317 | 46,996 | 104,785 | 261 | 295,015 |
| Ammonium phosphate nitrate: 27-14 5/ | 0 | 0 | 0 | 0 | 3,212 | 0 | 0 | 4,336 | 10,135 | 0 | 17,683 |
| Ammoniated superphosphate 6/ | 0 | 0 | 37 | 0 | 0 | 0 | 0 | 0 | 3,012 | 0 | 3,049 |
| Basic slag | 0 | 0 | 18,900 | 0 | 0 | 122,000 | 3,322 | 0 | 0 | 0 | 144,222 |
| Bonemeal: raw and steamed | 1,469 | 4,115 | 1,260 | 1,925 | 243 | 307 | 386 | 2 | 1,902 | 0 | 11,609 |
| Calcium metaphosphate | 0 | 590 | 2,478 | 11,617 | 15,739 | 14,122 | 856 | 272 | 26 | 0 | 45,700 |
| Diammonium phosphate: 21-53 5/ | 0 | 113 | 1,541 | 3,796 | 5,502 | 3,456 | 3,027 | 7,803 | 1,073 | 1,102 | 27,413 |
| Phosphoric acid | 0 | 0 | 0 | 0 | 0 | 0 | 1,611 | 10,781 | 10,675 | 0 | 23,067 |
| Phosphate rock | 274 | 7,492 | 18,204 | 564,983 | 215,208 | 8,968 | 16,414 | 80 | 824 | 2,804 | 835,251 |
| Colloidal phosphate | 0 | 80 | 317 | 1,383 | 3,120 | 7,649 | 2,915 | 120 | 710 | 0 | 16,294 |
| Superphosphate: 18% | 1,824 | 7,753 | 14,896 | 16,078 | 16,963 | 19,340 | 0 | 0 | 3,442 | 0 | 80,296 |
| " 19% | 6,556 | 50 | 9,276 | 0 | 14 | 105 | 0 | 8,766 | 67,173 | 0 | 91,940 |
| " 20-22% | 21,907 | 61,165 | 26,257 | 42,988 | 24,572 | 56,122 | 58,708 | 6,879 | 1,309 | 5,747 | 305,654 |
| " 23-41% | 50 | 0 | 0 | 3,499 | 636 | 0 | 577 | 1,771 | 29 | 0 | 6,562 |
| " 42-44% | 0 | 0 | 0 | 0 | 21,038 | 0 | 1 | 28,196 | 7,668 | 0 | 56,903 |
| " 45% | 1 | 887 | 120 | 24,324 | 40,540 | 700 | 19,899 | 38,523 | 16,188 | 2 | 141,184 |
| " 46% | 60 | 2,013 | 5,427 | 44,231 | 68,527 | 2,427 | 20,660 | 4,504 | 3,643 | 1,725 | 153,217 |
| " 47-48% | 0 | 25 | 158 | 4,389 | 1,981 | 3,046 | 1,775 | 4,745 | 0 | 0 | 16,119 |
| " 49-52% | 0 | 0 | 0 | 238 | 84 | 38 | 18 | 0 | 0 | 0 | 378 |
| Other | 256 | 0 | 2,845 | 0 | 0 | 577 | 0 | 0 | 69 | 0 | 3,747 |
| POTASH MATERIALS | | | | | | | | | | | |
| Cotton hull ashes | 318 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 318 |
| Lime-potash mixtures 7/ | 0 | 91 | 20,957 | 0 | 0 | 6,280 | 0 | 0 | 0 | 0 | 27,328 |
| Manure salts | 0 | 5 | 324 | 0 | 0 | 0 | 28 | 0 | 0 | 0 | 357 |
| Potassium chloride: 50% | 152 | 219 | 354 | 4,198 | 299 | 326 | 561 | 140 | 145 | 0 | 6,394 |
| " " 60% | 1,678 | 4,625 | 35,252 | 187,179 | 45,095 | 40,956 | 28,348 | 1,492 | 5,884 | 7,887 | 358,396 |
| " magnesium sulfate | 68 | 1,354 | 1,981 | 3,369 | 355 | 1,137 | 1,245 | 41 | 264 | 5 | 9,819 |
| " sodium nitrate 6/ | 174 | 1 | 13,290 | 39 | 0 | 1,256 | 18 | 0 | 0 | 0 | 14,778 |
| " sulfate | 114 | 1,319 | 5,246 | 3,480 | 2 | 6,411 | 120 | 1,125 | 6,864 | 2,106 | 26,787 |
| Other | 4 | 14 | 2,659 | 1,116 | 0 | 0 | 441 | 0 | 127 | 0 | 4,361 |
| TOTAL: PRIMARY NUTRIENT FERTILIZERS | 437,528 | 1,927,842 | 5,566,853 | 4,675,462 | 2,311,604 | 2,622,210 | 1,336,344 | 504,340 | 1,839,470 | 354,382 | 21,576,035 |
| SECONDARY & TRACE NUTRIENT MATERIALS | | | | | | | | | | | |
| Aluminum sulfate 4/ | 4 | 8 | 7 | 0 | 0 | 0 | 0 | 0 | 53 | 0 | 72 |
| Borax 4/ | 47 | 165 | 337 | 193 | 49 | 418 | 25 | 0 | 630 | 0 | 1,864 |
| Calcium sulfate (gypsum) | 101 | 3,238 | 99,307 | 1,717 | 135 | 2,132 | 810 | 39,008 | 742,252 | 2 | 888,702 |
| Copper sulfate 4/ | 0 | 64 | 208 | 36 | 0 | 1 | 1 | 0 | 202 | 0 | 512 |
| Iron sulfate 4/ | 0 | 0 | 105 | 0 | 0 | 0 | 15 | 549 | 2,308 | 2,311 | 5,288 |
| Magnesium sulfate 4/ | 28 | 250 | 114 | 33 | 0 | 0 | 3 | 5 | 64 | 117 | 614 |
| Manganese sulfate 4/ | 2 | 136 | 57 | 430 | 0 | 0 | 1 | 0 | 43 | 0 | 669 |
| Mixed minerals 4/ | 0 | 19 | 1,097 | 15 | 266 | 7 | 102 | 651 | 3,864 | 0 | 6,021 |
| Sulfur: 25-99% S | 7 | 32 | 195 | 1 | 38 | 2 | 3,281 | 1,585 | 16,409 | 0 | 21,550 |
| Sulfuric acid: 40-93% | 0 | 0 | 0 | 0 | 0 | 0 | 834 | 2,674 | 964 | 0 | 4,472 |
| Zinc sulfate 4/ | 0 | 27 | 216 | 1 | 4 | 85 | 3 | 3 | 3,254 | 66 | 3,659 |
| Other | 0 | 0 | 31 | 107 | 0 | 0 | 0 | 2,235 | 3,932 | 0 | 6,305 |
| SECONDARY & TRACE NUTRIENT MATERIALS | 189 | 3,939 | 101,674 | 2,533 | 492 | 2,645 | 5,075 | 46,710 | 773,975 | 2,496 | 939,728 |
| GRAND TOTAL | 437,717 | 1,931,781 | 5,668,527 | 4,677,995 | 2,312,096 | 2,624,855 | 1,341,419 | 551,050 | 2,613,445 | 356,878 | 22,515,763 |

---

1/ Including 1,030 tons of 30-10-0 grade, 6,100 tons of calcium metaphosphate, 4,625 tons of diammonium phosphate, and 297 tons superphosphate (48%) distributed by Government agencies for test demonstrations. Does not include liming materials or the quantities of materials used for the manufacture of the indicated quantities of commercial mixtures. The primary plant nutrient content of mixtures is shown in table 11 , and of the principal materials in table 13 . 2/ Consumption in Alaska was not available. It is estimated to be not more than 2,000 tons. Consumption in U. S. possessions considered negligible. 3/ Minor quantities may have been used for other purposes than fertilizer. 4/ Distributed by manufacturers of fertilizers. 5/ Including quantities reported as mixtures. 6/ Additional quantities may have been reported by grade under mixtures. 7/ Additional quantities are given free to farmers for which no records are kept.

## ALL FERTILIZERS

The total quantity of fertilizer consumed in the year ended June 30, 1958, was 22,515,763 tons (table 1). It comprised 21,576,035 tons of products containing one or more of the primary nutrients and 939,728 tons of secondary and trace nutrient materials. Consumption of fertilizers containing primary nutrients was 189,733 tons (0.9 percent) below that (21,765,768 tons) in 1956-57. The quantity of the secondary and trace nutrient materials was 3,515 tons (0.4 percent) below that (943,243 tons) used in 1956-57.

The changes in consumption of the classes of fertilizers containing primary nutrients in 1957-58 as compared with 1956-57 are summarized by regions in table 2. The national decrease in total consumption in 1957-58 was due to a decrease of 349,784 tons (2.4 percent) of mixtures, which was partly offset by an increase of 160,051 tons (2.3 percent) of direct application materials. This was the fifth consecutive year since the peak of 1952-53 that the quantity of mixtures had decreased. The consumption of direct application materials, however, has increased annually except in 1952-53 and 1953-54. The decrease in total consumption was chiefly

Table 2. - Regional change in consumption of fertilizers in year ended June 30, 1958, from that in the preceding year

| Region | Change from previous year in consumption as - | | | | | |
|---|---|---|---|---|---|---|
| | Mixtures | Materials[1] | Total[1] | Mixtures | Materials[1] | Total[1] |
| | Tons | Tons | Tons | Percent | Percent | Percent |
| New England | 3,585 | -552 | 3,033 | 1.0 | -0.8 | 0.7 |
| Middle Atlantic | -17,414 | 4,299 | -13,115 | -1.0 | 2.2 | -.7 |
| South Atlantic | -196,487 | -56,811 | -253,298 | -4.1 | -5.6 | -4.4 |
| East North Central | 8,577 | 114,172 | 122,749 | .3 | 9.2 | 2.7 |
| West North Central | -17,374 | 148,280 | 130,906 | -1.4 | 15.4 | 6.0 |
| East South Central | -116,051 | -132,547 | -248,598 | -6.1 | 13.8 | -8.7 |
| West South Central | -1,047 | 22,111 | 21,064 | -.2 | 3.2 | 1.6 |
| Mountain | 12,760 | 61,253 | 74,013 | 22.6 | 16.4 | 17.2 |
| Pacific | 27,480 | 73,841 | 101,321 | 7.9 | 5.3 | 5.8 |
| Total | -295,971 | 234,046 | -61,925 | -2.0 | 3.4 | -.3 |
| Hawaii | -5,221 | -66,675 | -71,896 | -8.0 | -52.7 | -37.5 |
| Puerto Rico | -48,592 | -7,320 | -55,912 | -21.1 | -12.2 | -19.3 |
| United States | -349,784 | 160,051 | -189,733 | -2.4 | 2.3 | -.9 |

[1] Excluding the quantity of secondary and trace nutrient materials.

in the South Atlantic and East South Central regions. The consumption in the North Central, Mountain, and Pacific regions continued to make large gains.

As shown in table 3 (column 9), consumption of fertilizers containing primary nutrients increased in 27 and decreased in 23 areas. In comparison with 1956-57, the increases ranged up to 55 percent (District of Columbia), while the decreases ranged to 37 percent (Hawaii). In the areas showing increases, 669,995 tons (7.7 percent) more fertilizer were consumed, while in the areas showing decreases the consumption was 859,728 tons (6.6 percent) lower—resulting in a net decrease of 189,733 tons (0.9 percent). As in 1956-57, the tonnage was higher in most of the Northern and Western States and generally lower in the Southeastern States.

Compared with the consumption in each six-month period of 1956-57, mixtures decreased by 283,543 tons (7.6 percent) in the July-December period and by 66,241 tons (0.6 percent) in the January-June period. Consumption of primary nutrient materials was higher by 138,249 tons (5.8 percent) and 21,802 tons (0.5 percent) in these periods, respectively.

## MIXTURES

In 1957-58 the total consumption of commercial mixtures amounted to 14,353,023 tons (table 3). There were 2,156 grades reported. In addition, over 500 mixtures, many of which are duplicated in the above total but were not reported by grades, were used in California and an unknown number was reported as miscellaneous tonnages in other States. Mixtures consumed in 1957-58 represented 63.7 percent of the quantity of all fertilizers compared with 64.7 percent for the preceding year.

The total consumption of mixtures was 349,784 tons (2.4 percent) lower than in 1956-57. In 1957-58, a cumulative increase of 213,141 tons (6.6 percent) of mixtures was shown for 23 areas and a decrease of 562,925 tons (4.9 percent) for 28 areas. Larger quantities were used in most of the States of the New England, West North Central, Mountain, and Pacific regions, while in the majority of the other areas their use was smaller than in the preceding year.

N-P-K mixtures (table 1) represented 90.2 percent of the total tonnage of mixtures, while the other types (N-P, P-K, N-K) accounted for 2.4 percent, 5.7 percent, and 1.7 percent, respectively. The N-P-K type comprised more than 80 percent of the tonnage of mixtures in all regions except the Mountain and Pacific. In these regions, N-P-K mixtures represented 53.5 percent and 77.3 percent, respectively, while the N-P type represented 45.6 percent and 21.3 percent, respectively.

Table 3. - Fertilizers consumed as mixtures and as separate materials, year ended June 30, 1958, compared with consumption of previous year, by State and region

| State and region | Mixtures 1/ | | | Materials 2/ | | | Grand total | Comparison with total consumption in year ended June 30, 1957 | |
|---|---|---|---|---|---|---|---|---|---|
| | July 1 - Dec. 31, 1957 | Jan. 1 - June 30, 1958 | Total | July 1 - Dec. 31, 1957 | Jan. 1 - June 30, 1958 | Total | | Fertilizer 3/ | N, avail. $P_2O_5$ & $K_2O$ |
| | Tons | Tons | Tons | Tons | Tons | Tons | Tons | Percent | Percent |
| Maine | 11,497 | 159,377 | 170,874 | 4,258 | 3,736 | 7,994 | 178,868 | 104 | 107 |
| New Hampshire | 2,550 | 13,319 | 15,869 | 1,124 | 3,069 | 4,193 | 20,062 | 103 | 103 |
| Vermont | 5,026 | 35,166 | 40,192 | 12,776 | 4,581 | 17,357 | 57,549 | 104 | 103 |
| Massachusetts | 12,149 | 55,744 | 67,893 | 6,040 | 13,050 | 19,090 | 86,983 | 101 | 100 |
| Rhode Island | 2,144 | 13,065 | 15,209 | 630 | 1,469 | 2,099 | 17,308 | 102 | 102 |
| Connecticut | 7,727 | 49,114 | 56,841 | 4,227 | 15,879 | 20,106 | 76,947 | 91 | 96 |
| New England | 41,093 | 325,785 | 366,878 | 29,055 | 41,784 | 70,839 | 437,717 | 101 | 103 |
| New York | 120,979 | 430,694 | 551,673 | 27,854 | 56,071 | 83,925 | 635,598 | 110 | 110 |
| New Jersey | 39,288 | 153,349 | 192,637 | 6,979 | 15,961 | 22,940 | 215,577 | 80 | 82 |
| Pennsylvania | 174,512 | 401,807 | 576,319 | 24,093 | 41,907 | 66,000 | 642,319 | 101 | 102 |
| Delaware | 13,303 | 65,459 | 78,762 | 1,129 | 2,547 | 3,676 | 82,438 | 94 | 94 |
| District of Columbia | 1,128 | 1,879 | 3,007 | 492 | 502 | 994 | 4,001 | 155 | 170 |
| Maryland | 66,159 | 195,231 | 261,390 | 5,295 | 11,413 | 16,708 | 278,098 | 95 | 97 |
| West Virginia | 11,629 | 52,752 | 64,381 | 2,695 | 6,674 | 9,369 | 73,750 | 90 | 90 |
| Middle Atlantic | 426,998 | 1,301,171 | 1,728,169 | 68,537 | 135,075 | 203,612 | 1,931,781 | 99 | 100 |
| Virginia | 128,722 | 480,431 | 609,153 | 17,930 | 78,354 | 96,284 | 705,437 | 91 | 95 |
| North Carolina | 171,108 | 1,029,363 | 1,200,471 | 40,509 | 269,822 | 310,331 | 1,510,802 | 97 | 100 |
| South Carolina | 84,690 | 440,709 | 525,399 | 32,189 | 175,164 | 207,353 | 732,752 | 90 | 92 |
| Georgia | 192,037 | 792,594 | 984,631 | 52,111 | 221,559 | 273,670 | 1,258,301 | 97 | 100 |
| Florida | 513,858 | 782,407 | 1,296,265 | 61,414 | 103,556 | 164,970 | 1,461,235 | 99 | 102 |
| South Atlantic | 1,090,415 | 3,525,504 | 4,615,919 | 204,153 | 848,455 | 1,052,608 | 5,668,527 | 96 | 99 |
| Ohio | 262,952 | 686,660 | 949,612 | 27,931 | 75,059 | 102,990 | 1,052,602 | 102 | 102 |
| Indiana | 227,128 | 623,308 | 850,436 | 53,074 | 178,673 | 231,747 | 1,082,183 | 100 | 103 |
| Illinois | 144,813 | 409,998 | 554,811 | 431,319 | 467,648 | 898,967 | 1,453,778 | 106 | 110 |
| Michigan | 170,679 | 405,371 | 576,050 | 19,197 | 53,713 | 72,910 | 648,960 | 102 | 104 |
| Wisconsin | 46,663 | 348,322 | 394,985 | 12,638 | 32,849 | 45,487 | 440,472 | 103 | 106 |
| East North Central | 852,235 | 2,473,659 | 3,325,894 | 544,159 | 807,942 | 1,352,101 | 4,677,995 | 103 | 105 |
| Minnesota | 41,291 | 278,920 | 320,211 | 31,838 | 91,257 | 123,095 | 443,306 | 104 | 106 |
| Iowa | 46,323 | 293,274 | 339,597 | 57,337 | 145,158 | 202,495 | 542,092 | 117 | 118 |
| Missouri | 146,859 | 253,762 | 400,621 | 188,489 | 167,003 | 355,492 | 756,113 | 94 | 93 |
| North Dakota | 5,533 | 25,421 | 30,954 | 18,838 | 56,950 | 75,788 | 106,742 | 131 | 131 |
| South Dakota | 947 | 9,718 | 10,665 | 5,068 | 18,510 | 23,578 | 34,243 | 139 | 138 |
| Nebraska | 6,144 | 25,598 | 31,742 | 48,336 | 151,975 | 200,311 | 232,053 | 137 | 135 |
| Kansas | 40,833 | 28,122 | 68,955 | 75,147 | 53,445 | 128,592 | 197,547 | 93 | 94 |
| West North Central | 287,930 | 914,815 | 1,202,745 | 425,053 | 684,298 | 1,109,351 | 2,312,096 | 106 | 108 |
| Kentucky | 64,274 | 371,320 | 435,594 | 26,009 | 70,367 | 96,376 | 531,970 | 98 | 100 |
| Tennessee | 95,987 | 314,026 | 410,013 | 32,903 | 70,569 | 103,472 | 513,485 | 94 | 93 |
| Alabama | 130,317 | 562,132 | 692,449 | 62,409 | 192,328 | 254,737 | 947,186 | 91 | 94 |
| Mississippi | 18,011 | 239,473 | 257,484 | 150,597 | 224,133 | 374,730 | 632,214 | 85 | 84 |
| East South Central | 308,589 | 1,486,951 | 1,795,540 | 271,918 | 557,397 | 829,315 | 2,624,855 | 91 | 92 |
| Arkansas | 21,630 | 118,246 | 139,876 | 41,203 | 109,529 | 150,732 | 290,608 | 89 | 91 |
| Louisiana | 31,753 | 115,247 | 147,000 | 31,927 | 97,164 | 129,091 | 276,091 | 96 | 97 |
| Oklahoma | 24,856 | 33,370 | 58,226 | 26,893 | 21,809 | 48,702 | 106,928 | 99 | 100 |
| Texas | 83,829 | 202,496 | 286,325 | 130,853 | 250,614 | 381,467 | 667,792 | 112 | 115 |
| West South Central | 162,068 | 469,359 | 631,427 | 230,876 | 479,116 | 709,992 | 1,341,419 | 102 | 104 |
| Montana | 760 | 3,684 | 4,444 | 12,531 | 21,239 | 33,770 | 38,214 | 87 | 91 |
| Idaho | 1,291 | 6,910 | 8,201 | 19,804 | 80,028 | 99,832 | 108,033 | 134 | 133 |
| Wyoming | 192 | 1,178 | 1,370 | 1,344 | 10,160 | 11,504 | 12,874 | 123 | 119 |
| Colorado | 2,373 | 11,270 | 13,643 | 19,385 | 48,561 | 67,946 | 81,589 | 134 | 134 |
| New Mexico | 499 | 2,219 | 2,718 | 7,499 | 29,719 | 37,218 | 39,936 | 106 | 102 |
| Arizona | 9,333 | 23,233 | 32,566 | 63,958 | 112,412 | 176,370 | 208,936 | 112 | 120 |
| Utah | 950 | 3,374 | 4,324 | 5,034 | 30,351 | 35,385 | 39,709 | 123 | 129 |
| Nevada | 522 | 1,362 | 1,884 | 15,955 | 3,920 | 19,875 | 21,759 | 133 | 161 |
| Mountain | 15,920 | 53,230 | 69,150 | 145,510 | 336,390 | 481,900 | 551,050 | 117 | 120 |
| Washington | 8,405 | 36,720 | 45,125 | 72,690 | 129,924 | 202,614 | 247,739 | 142 | 148 |
| Oregon | 5,073 | 23,098 | 28,171 | 41,457 | 122,516 | 163,973 | 192,144 | 89 | 92 |
| California | 103,838 | 198,484 | 302,322 | 891,341 | 979,899 | 1,871,240 | 2,173,562 | 104 | 108 |
| Pacific | 117,316 | 258,302 | 375,618 | 1,005,488 | 1,232,339 | 2,237,827 | 2,613,445 | 106 | 111 |
| Total | 3,302,564 | 10,808,776 | 14,111,340 | 2,924,749 | 5,122,796 | 8,047,545 | 22,158,885 | 100 | 103 |
| Hawaii | 38,641 | 21,566 | 60,207 | 43,247 | 19,004 | 62,251 | 122,458 | 63 | 66 |
| Puerto Rico | 79,632 | 101,844 | 181,476 | 26,680 | 26,264 | 52,944 | 234,420 | 81 | 82 |
| United States: 1957-58 | 3,420,837 | 10,932,186 | 14,353,023 | 2,994,676 | 5,168,064 | 8,162,740 | 22,515,763 | 99 | 102 |
| 1956-57 | 3,704,380 | 10,998,427 | 14,702,807 | 2,875,726 | 5,130,478 | 8,006,204 | 22,709,011 | 100 | 100 |
| 1955-56 | 3,545,913 | 11,229,740 | 14,775,653 | 2,508,638 | 4,909,679 | 7,418,317 | 22,193,970 | 98 | 95 |

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1/ The classes of mixtures are listed in table 1 and the principal grades in tables 4 and 5 . 2/ The kinds of materials are listed in tables 1 and 8 . Quantities include the primary nutrient (N, $P_2O_5$, $K_2O$) materials and the secondary and trace nutrient materials.

3/ Fertilizers which were guaranteed to contain one or more of the primary nutrients.

Excluding Hawaii and Puerto Rico, 108 grades of mixtures were each used in quantities of 10,000 tons or more. Only 107 of these are listed in table 4 as one grade was restricted. The 108 grades totaled 12,911,855 tons and accounted for 91.50 percent of the quantity of mixtures used in the designated areas. Other grades consumed in the same areas in individual amounts of 2,500 to 9,999 tons totaled 118 (625,380 tons, 4.43 percent), while those under 2,500 tons totaled 1,817 (204,304 tons, 1.44 percent). The balance (369,801 tons, 2.63 percent) represented mixtures not reported by grades.

Consumption of mixtures in Hawaii and Puerto Rico amounted to 241,683 tons in 145 grades. While many of the grades in Puerto Rico are similar to those used in other areas of the United States, most of those in Hawaii are designated in fractional numbers.

The 15 grades consumed in largest tonnages in 1957-58 in each of the regions are shown in table 5, together with the quantities for each State in the region. At least 11 of the grades in each area were among the 15 consumed in largest tonnages in the preceding year, but not always in the same relative order of tonnage. The principal grades in 1957-58 accounted for 50 percent or more of the total quantity of mixtures consumed in each of the States except California, Colorado, Florida, Kansas, Nebraska, North Dakota, Oregon, South Dakota, Washington, and Wyoming. In each of these States, except North Dakota, they represented 30 to 49 percent of the total.

The total tonnage of the 15 grades shown for the United States, excluding Hawaii and Puerto Rico, represented 61.3 percent of the tonnage of all mixtures. Nearly two-thirds of the tonnage was supplied by approximately one percent of the grades. As in the preceding year, the 5-10-10 grade was consumed in largest tonnage. The relative order of most of the other 14 grades was the same in 1957-58 as in 1956-57, except that the 3-9-6 grade was replaced by the 5-10-15 grade and the relative order of the 5-20-20 and 3-12-12 grades and of the 4-10-7 and 2-12-12 grades were reversed.

The 5-10-10 and 4-12-12 grades, consumed in the largest tonnages for the individual grades have nutrient ratios of 1:2:2 and 1:3:3. Mixtures having these ratios were also used in the largest total tonnages in 1957-58 (table 6). The cumulative tonnages of all grades reported in the 10 listed ratios accounted for 74.1 percent of the total use of mixtures in the United States (excluding Hawaii and Puerto Rico) in 1957-58.

The national weighted average of the primary nutrients contained in mixtures in 1957-58 was 5.96 percent N, 12.53 percent available $P_2O_5$, and 11.73 percent $K_2O$, a total of 30.22 percent (table 7). The corresponding values in the preceding year were 5.74, 12.36, 11.43 (revised), and 29.53 (revised) percent. The proportionate increase was highest for N (3.83 percent), while that for available $P_2O_5$ was only 1.38 percent, and for $K_2O$ 2.62 percent.

Table 4. - Principal grades of mixtures consumed in United States, year ended June 30, 1958, compared with consumption of previous year

| Grade | Consumption[1] | | Proportion of total | | Grade | Consumption[1] | | Proportion of total | |
|---|---|---|---|---|---|---|---|---|---|
| | 1957 | 1958 | 1957 | 1958 | | 1957 | 1958 | 1957 | 1958 |
| | Tons | Tons | Percent | Percent | | Tons | Tons | Percent | Percent |
| 0-9-27 | 13,848 | 12,853 | 0.10 | 0.09 | 6-8-8 | 278,438 | 239,274 | 1.94 | 1.69 |
| 0-10-20 | 77,023 | 76,963 | .54 | .54 | 6-8-12 | 16,979 | 14,516 | .11 | .11 |
| 0-10-30 | 47,908 | 51,339 | .33 | .37 | 6-9-12 | 24,767 | 21,908 | .17 | .15 |
| 0-12-12 | 13,573 | 11,431 | .10 | .08 | 6-10-4 | 89,016 | 76,780 | .62 | .55 |
| 0-12-36 | 10,546 | 13,557 | .07 | .09 | 6-12-6 | 34,330 | 35,630 | .24 | .25 |
| 0-14-14 | 162,169 | 186,776 | 1.12 | 1.33 | 6-12-12 | 371,569 | 389,039 | 2.57 | 2.76 |
| 0-15-30 | 20,002 | 24,228 | .14 | .17 | 6-18-6 | 14,414 | 25,361 | .10 | .18 |
| 0-20-20 | 304,514 | 285,711 | 2.12 | 2.02 | 6-24-12 | 105,127 | 144,589 | .73 | 1.03 |
| 0-24-24 | 9,331 | 10,764 | .06 | .08 | 6-24-24 | 63,358 | 107,939 | .44 | .76 |
| 0-25-25 | 27,032 | 30,247 | .19 | .21 | 7-7-7 | 24,417 | 19,617 | .17 | .14 |
| 0-30-15 | 13,561 | 10,835 | .09 | .08 | 7-8-8 | 8,672 | 10,569 | .06 | .07 |
| 0-30-30 | 15,879 | 14,440 | .11 | .10 | 7-28-14 | 14,204 | 26,933 | .10 | .20 |
| 2-12-12 | 371,393 | 302,441 | 2.57 | 2.15 | 8-0-8 | 11,022 | 12,017 | .08 | .08 |
| 3-9-6 | 251,084 | 48,138 | 1.74 | .34 | 8-0-24 | 17,869 | 20,463 | .13 | .15 |
| 3-9-9 | 528,959 | 500,107 | 3.67 | 3.54 | 8-4-8 | 41,763 | 53,300 | .29 | .37 |
| 3-9-12 | 26,998 | 28,229 | .19 | .20 | 8-4-12 | 6,990 | 13,314 | .05 | .10 |
| 3-9-18 | 61,932 | 63,982 | .43 | .45 | 8-8-4 | 15,536 | 11,706 | .10 | .08 |
| 3-9-27 | 75,262 | 67,528 | .52 | .48 | 8-8-8 | 221,474 | 205,192 | 1.54 | 1.46 |
| 3-12-6 | 108,552 | 89,117 | .75 | .63 | 8-12-12 | 59,701 | 68,877 | .42 | .48 |
| 3-12-12 | 908,575 | 708,604 | 6.31 | 5.03 | 8-16-16 | 166,068 | 191,186 | 1.16 | 1.36 |
| 3-18-9 | 36,428 | 29,246 | .25 | .20 | 8-24-0 | 10,220 | 21,890 | .07 | .15 |
| 3-18-18 | 0 | 14,551 | 0 | .11 | 8-24-8 | 62,403 | 45,615 | .43 | .33 |
| 4-6-6 | 10,635 | 10,437 | .07 | .07 | 8-24-12 | 18,643 | 23,877 | .13 | .17 |
| 4-6-8 | 43,788 | 28,720 | .31 | .20 | 8-32-0 | 56,439 | 52,210 | .39 | .37 |
| 4-7-5 | 118,792 | 114,495 | .82 | .81 | 9-6-6 | 14,459 | 13,892 | .10 | .09 |
| 4-8-4 | 12,340 | 14,698 | .09 | .11 | 9-9-9 | 16,605 | 33,634 | .12 | .24 |
| 4-8-6 | 143,180 | 82,839 | .99 | .59 | 9-12-12 | 11,644 | 13,870 | .08 | .10 |
| 4-8-8 | 208,791 | 137,019 | 1.45 | .97 | 10-0-10 | 21,182 | 17,547 | .14 | .12 |
| 4-8-10 | 87,176 | 84,934 | .60 | .60 | 10-6-4 | 59,507 | 78,079 | .41 | .56 |
| 4-8-12 | 74,057 | 113,281 | .52 | .80 | 10-10-5 | 26,279 | 23,061 | .18 | .16 |
| 4-9-3 | 52,208 | 49,950 | .36 | .36 | 10-10-10 | 689,131 | 701,970 | 4.79 | 4.98 |
| 4-10-6 | 105,956 | 86,319 | .74 | .61 | 10-20-0 | 53,834 | 47,466 | .38 | .33 |
| 4-10-7 | 362,433 | 306,541 | 2.52 | 2.17 | 10-20-5 | 5,451 | 11,912 | .03 | .09 |
| 4-10-10 | 17,075 | 21,440 | .12 | .15 | 10-20-10 | 140,494 | 165,234 | .98 | 1.17 |
| 4-12-4 | 61,625 | 41,225 | .43 | .29 | 10-20-20 | 29,195 | 45,248 | .20 | .32 |
| 4-12-8 | 148,832 | 123,724 | 1.03 | .88 | 12-0-10 | 16,846 | 16,385 | .12 | .11 |
| 4-12-12 | 949,433 | 1,021,630 | 6.59 | 7.24 | 12-0-12 | 7,711 | 11,219 | .05 | .08 |
| 4-16-8 | 22,371 | 26,168 | .16 | .19 | 12-6-6 | 13,164 | 23,024 | .09 | .17 |
| 4-16-16 | 527,812 | 469,477 | 3.66 | 3.32 | 12-12-12 | 611,110 | 690,322 | 4.24 | 4.89 |
| 5-6-8 | 10,264 | 12,472 | .07 | .09 | 12-24-12 | 29,958 | 31,862 | .21 | .22 |
| 5-7-5 | 22,311 | 19,751 | .15 | .14 | 13-13-13 | 44,801 | 47,658 | .31 | .34 |
| 5-10-5 | 604,630 | 535,745 | 4.19 | 3.80 | 14-0-14 | 54,770 | 53,046 | .38 | .37 |
| 5-10-10 | 1,407,706 | 1,479,466 | 9.78 | 10.48 | 14-14-14 | 45,114 | 43,390 | .31 | .31 |
| 5-10-15 | 150,218 | 206,112 | 1.04 | 1.46 | 15-0-15 | 9,756 | 11,492 | .07 | .08 |
| 5-10-30 | 4,109 | 10,080 | .02 | .07 | 15-5-5 | 2,186 | 12,786 | .01 | .09 |
| 5-20-10 | 73,446 | 85,592 | .51 | .60 | 15-10-10 | 4,953 | 12,089 | .03 | .09 |
| 5-20-20 | 787,324 | 818,501 | 5.46 | 5.81 | 15-15-0 | 19,351 | 20,709 | .13 | .14 |
| 6-4-6 | 20,022 | 17,922 | .14 | .12 | 15-15-15 | 27,695 | 29,953 | .20 | .22 |
| 6-4-8 | 59,255 | 54,872 | .41 | .39 | 16-8-8 | 6,287 | 10,983 | .04 | .07 |
| 6-6-6 | 95,018 | 92,844 | .66 | .66 | 16-48-0 | 15,342 | 19,571 | .11 | .14 |
| 6-6-8 | 37,781 | 37,136 | .27 | .26 | 17-7-0 | 21,061 | 14,541 | .14 | .11 |
| 6-6-12 | 12,033 | 21,233 | .08 | .15 | 20-0-20 | 9,729 | 10,275 | .06 | .07 |
| 6-6-18 | 9,832 | 13,443 | .07 | .10 | 20-20-0 | 7,003 | 12,264 | .05 | .09 |
| 6-8-6 | 130,846 | 115,721 | .91 | .82 | | | | | |
| Grades of 10,000 tons or more ........................... | | | | | | [2] 13,306,316 | [3] 12,911,855 | 92.35 | 91.50 |
| Grades of 5,000 to 9,999 tons ........................... | | | | | | [4] 356,835 | [5] 409,442 | 2.48 | 2.90 |
| Grades of 2,500 to 4,999 tons ........................... | | | | | | [5] 207,242 | [6] 215,938 | 1.44 | 1.53 |
| Grades under 2,500 tons ................................. | | | | | | [7] 218,949 | [8] 204,304 | 1.52 | 1.44 |
| Not reported by grade ................................... | | | | | | 317,969 | 369,801 | 2.21 | 2.63 |
| Total[9] | | | | | | [10] 14,407,311 | [11] 14,111,340 | 100.00 | 100.00 |

[1] Grades consumed in amounts of 10,000 tons or more in year ended June 30, 1958 and their consumption in year ended June 30, 1957. [2] 104 grades. [3] 108 grades. [4] 49 grades. [5] 56 grades. [6] 62 grades. [7] 1,301 grades. [8] 1,817 grades. [9] Does not include the quantity of mixtures consumed in Alaska, Hawaii, or Puerto Rico. [10] 1,510 grades. [11] 2,043 grades.

Table 5. - Mixtures consumed in States and regions, by grade, year ended June 30, 1958

| State | Consumption of 15 principal grades in indicated region Tons | | | | | | | | | | | | | | | Other grades | | Total tons |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | No.1/ | Tons2/ | |
| | New England | | | | | | | | | | | | | | | | | |
| | 8-12-12 | 10-10-10 | 5-10-10 | 8-16-16 | 6-9-12 | 0-20-20 | 0-15-30 | 8-9-10 | 5-8-7 | 6-3-6 | 7-7-7 | 5-10-5 | 8-12-16 | 6-10-4 | 11-12-14 | | | |
| Maine | 58,136 | 24,606 | 8,318 | 14,836 | 21,855 | 3,334 | 532 | 9,470 | 1,740 | 0 | 310 | 370 | 6,117 | 182 | 5,684 | 42 | 15,384 | 170,874 |
| New Hampshire | 1,059 | 3,006 | 2,290 | 5,378 | 0 | 206 | 1,338 | 0 | 630 | 0 | 535 | 211 | 0 | 249 | 0 | 22 | 967 | 15,869 |
| Vermont | 555 | 8,495 | 5,550 | 7,719 | 0 | 12,920 | 2,963 | 0 | 42 | 0 | 261 | 72 | 75 | 27 | 0 | 26 | 1,513 | 40,192 |
| Massachusetts | 1,329 | 12,647 | 15,174 | 5,993 | 15 | 394 | 1,501 | 0 | 3,543 | 1,093 | 3,140 | 2,515 | 0 | 3,186 | 0 | 29 | 17,363 | 67,893 |
| Rhode Island | 884 | 1,361 | 7,297 | 313 | 0 | 253 | 328 | 0 | 462 | 0 | 470 | 315 | 0 | 132 | 0 | 25 | 3,394 | 15,209 |
| Connecticut | 1,279 | 11,286 | 10,004 | 2,741 | 0 | 1,473 | 3,469 | 0 | 1,580 | 5,609 | 1,883 | 2,753 | 0 | 1,920 | 0 | 68 | 12,844 | 56,841 |
| Total | 63,242 | 61,401 | 48,633 | 36,980 | 21,870 | 18,580 | 10,131 | 9,470 | 7,997 | 6,702 | 6,599 | 6,236 | 6,192 | 5,696 | 5,684 | 101 | 51,465 | 366,878 |
| | Middle Atlantic | | | | | | | | | | | | | | | | | |
| | 5-10-10 | 5-10-5 | 10-10-10 | 8-16-16 | 3-12-6 | 0-20-20 | 6-12-12 | 6-12-6 | 10-6-4 | 3-12-12 | 2-12-12 | 4-8-12 | 10-20-20 | 5-10-15 | 4-12-12 | | | |
| New York | 143,726 | 109,569 | 72,751 | 63,979 | 1,569 | 17,313 | 15,334 | 26,091 | 16,215 | 2,385 | 2 | 1,557 | 7,737 | 9,327 | 186 | 92 | 63,932 | 551,673 |
| New Jersey | 99,781 | 21,961 | 8,435 | 1,845 | 629 | 2,395 | 4,104 | 1,640 | 4,112 | 1,032 | 130 | 401 | 5,528 | 861 | 53 | 67 | 39,730 | 192,637 |
| Pennsylvania | 267,205 | 20,009 | 60,173 | 35,957 | 41,845 | 34,685 | 10,097 | 1,128 | 3,613 | 11,913 | 6,050 | 7,111 | 6,411 | 1,899 | 13,476 | 111 | 54,747 | 576,319 |
| Delaware | 36,762 | 1,188 | 8,063 | 3,355 | 432 | 1,667 | 2,869 | 0 | 218 | 961 | 4,354 | 877 | 656 | 6,674 | 1,362 | 66 | 9,324 | 78,762 |
| Dist. of Col. | 76 | 1,428 | 12 | 0 | 1 | 1 | 0 | 0 | 641 | 2 | 4 | 6 | 0 | 0 | 0 | 25 | 836 | 3,007 |
| Maryland | 97,369 | 25,070 | 22,484 | 7,181 | 21,451 | 6,376 | 2,825 | 3 | 3,058 | 9,430 | 12,703 | 13,508 | 2,527 | 1,607 | 4,133 | 91 | 31,665 | 261,390 |
| West Virginia | 31,134 | 2,440 | 3,522 | 338 | 6,310 | 5,005 | 371 | 5 | 531 | 347 | 2,617 | 27 | 430 | 172 | 90 | 55 | 11,042 | 64,381 |
| Total | 676,053 | 181,665 | 175,440 | 112,655 | 72,237 | 67,442 | 35,600 | 28,867 | 28,388 | 26,070 | 25,860 | 23,487 | 23,289 | 20,540 | 19,300 | 196 | 211,276 | 1,728,169 |
| | South Atlantic | | | | | | | | | | | | | | | | | |
| | 4-12-12 | 5-10-10 | 3-9-9 | 2-12-12 | 4-8-8 | 4-7-5 | 5-10-5 | 8-8-8 | 6-6-6 | 6-8-6 | 4-8-12 | 4-10-6 | 4-8-10 | 4-8-6 | 10-10-10 | | | |
| Virginia | 12,838 | 157,838 | 45,350 | 126,659 | 0 | 0 | 62,298 | 6,692 | 0 | 12,191 | 0 | 0 | 7,148 | 0 | 40,722 | 28 | 137,417 | 609,153 |
| North Carolina | 23,666 | 387,273 | 271,323 | 129,778 | 0 | 0 | 312 | 33,397 | 0 | 49,660 | 54,010 | 255 | 56,120 | 0 | 14,906 | 18 | 179,771 | 1,200,471 |
| South Carolina | 95,026 | 27,857 | 129,099 | 0 | 64 | 0 | 33,946 | 6,669 | 0 | 3,933 | 33,816 | 85,917 | 0 | 0 | 1,529 | 29 | 107,543 | 525,399 |
| Georgia | 633,004 | 6,424 | 46,970 | 11,848 | 56,237 | 0 | 3,240 | 5,352 | 94 | 19,637 | 0 | 28 | 0 | 52,203 | 793 | 114 | 148,801 | 984,631 |
| Florida | 46,229 | 3,633 | 6,170 | 4,822 | 73,844 | 114,495 | 2,383 | 42,778 | 91,905 | 4,471 | 1,560 | 105 | 21,477 | 30,587 | 8,543 | 1,366 | 843,263 | 1,296,265 |
| Total | 810,763 | 583,025 | 498,912 | 273,107 | 130,145 | 114,495 | 102,179 | 94,888 | 91,999 | 89,892 | 89,386 | 86,305 | 84,745 | 82,790 | 66,493 | 1,387 | 1,416,795 | 4,615,919 |
| | East North Central | | | | | | | | | | | | | | | | | |
| | 5-20-20 | 3-12-12 | 4-16-16 | 12-12-12 | 10-10-10 | 0-20-20 | 5-10-10 | 6-24-12 | 6-24-24 | 3-9-27 | 0-10-30 | 10-6-4 | 5-20-10 | 6-12-12 | 3-18-9 | | | |
| Ohio | 100,740 | 287,905 | 53,393 | 99,674 | 64,478 | 28,857 | 116,345 | 28,557 | 4,765 | 810 | 1,033 | 14,557 | 4,739 | 14,030 | 15,976 | 107 | 113,753 | 949,612 |
| Indiana | 192,311 | 71,573 | 182,032 | 132,876 | 51,514 | 38,074 | 2,970 | 11,999 | 19,397 | 15,967 | 11,249 | 2,697 | 1,351 | 4,561 | 3,174 | 141 | 108,691 | 850,436 |
| Illinois | 58,693 | 46,544 | 81,306 | 57,793 | 80,188 | 20,565 | 478 | 5,072 | 17,550 | 18,372 | 3,359 | 2,966 | 4,423 | 2,878 | 362 | 143 | 154,262 | 554,811 |
| Michigan | 124,293 | 94,505 | 88,544 | 86,165 | 25,637 | 10,487 | 2,893 | 30,368 | 2,226 | 2,636 | 2,976 | 14,823 | 19,535 | 6,459 | 8,707 | 102 | 55,796 | 576,050 |
| Wisconsin | 112,023 | 36,338 | 37,633 | 8,203 | 34,419 | 30,300 | 145 | 1,364 | 26,191 | 16,824 | 30,328 | 761 | 572 | 1,687 | 1,015 | 81 | 57,182 | 394,985 |
| Total | 588,060 | 536,865 | 442,908 | 384,711 | 256,236 | 128,283 | 122,831 | 77,360 | 70,129 | 54,609 | 48,945 | 35,804 | 30,620 | 29,615 | 29,234 | 276 | 489,684 | 3,325,894 |
| | West North Central | | | | | | | | | | | | | | | | | |
| | 12-12-12 | 5-20-20 | 6-24-12 | 10-10-10 | 5-20-10 | 8-24-8 | 3-12-12 | 0-20-20 | 10-20-0 | 8-24-12 | 8-32-0 | 4-16-16 | 8-8-8 | 6-24-24 | 4-12-4 | | | |
| Minnesota | 7,844 | 85,691 | 59,323 | 10,099 | 5,535 | 0 | 752 | 13,275 | 2,411 | 21,947 | 3,894 | 10,080 | 70 | 6,479 | 2 | 112 | 92,809 | 320,211 |
| Iowa | 25,386 | 96,072 | 5,065 | 35,321 | 45,214 | 398 | 7,415 | 9,634 | 11,813 | 283 | 10,370 | 5,765 | 26 | 5,815 | 17 | 223 | 81,003 | 339,597 |
| Missouri | 184,840 | 13,030 | 64 | 12,892 | 564 | 25,154 | 25,724 | 10,370 | 257 | 0 | 91 | 3,965 | 17,272 | 4,792 | 14,544 | 64 | 87,062 | 400,621 |
| North Dakota | 737 | 617 | 1,641 | 52 | 0 | 0 | 40 | 32 | 153 | 1,387 | 484 | 83 | 0 | 114 | 0 | 58 | 25,614 | 30,954 |
| South Dakota | 117 | 18 | 347 | 150 | 2 | 11 | 0 | 8 | 1,807 | 58 | 2,607 | 0 | 0 | 0 | 0 | 48 | 5,540 | 10,665 |
| Nebraska | 859 | 415 | 126 | 77 | 1,627 | 457 | 0 | 377 | 3,698 | 0 | 3,849 | 0 | 4 | 88 | 13 | 104 | 20,152 | 31,742 |
| Kansas | 3,249 | 292 | 0 | 1,533 | 0 | 13,513 | 323 | 416 | 9,062 | 0 | 1,129 | 3 | 204 | 54 | 2,002 | 58 | 37,175 | 68,955 |
| Total | 223,032 | 196,135 | 66,566 | 60,124 | 52,942 | 39,533 | 34,254 | 34,112 | 29,201 | 23,675 | 22,424 | 19,896 | 17,576 | 17,342 | 16,578 | 302 | 349,355 | 1,202,745 |

(Continued)

Table 5 (Continued)

East South Central

| | 6-12-12 | 4-10-7 | 4-12-12 | 6-8-8 | 5-10-15 | 0-14-14 | 4-12-8 | 5-10-5 | 10-10-10 | 3-9-6 | 3-12-12 | 5-10-10 | 8-8-8 | 6-8-6 | 0-20-20 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kentucky | 28,414 | 0 | 745 | 0 | 103,276 | 497 | 85,286 | 2,346 | 36,758 | 10,373 | 32,176 | 14,995 | 413 | 21,910 | 8,162 | 113 | 90,243 | 435,594 |
| Tennessee | 255,806 | 313 | 1,058 | 1,607 | 20,970 | 281 | 5,982 | 3,643 | 4,204 | 35,720 | 6,278 | 10,147 | 1,567 | 439 | 4,345 | 99 | 57,653 | 410,013 |
| Alabama | 37 | 266,010 | 185,891 | 61,569 | 0 | 116,029 | 0 | 616 | 5,495 | 0 | 0 | 259 | 17,012 | 179 | 5,832 | 55 | 33,520 | 692,449 |
| Mississippi | 3,204 | 6,546 | 1,850 | 115,051 | 0 | 2,790 | 0 | 71,048 | 24 | 0 | 432 | 9,355 | 6,704 | 0 | 4,166 | 44 | 36,314 | 257,484 |
| Total | 287,461 | 272,869 | 189,544 | 178,227 | 124,246 | 119,597 | 91,268 | 77,653 | 46,481 | 46,093 | 38,886 | 34,756 | 25,696 | 22,528 | 22,505 | 175 | 217,730 | 1,795,540 |

West South Central

| | 5-10-5 | 10-20-10 | 12-12-12 | 8-8-8 | 12-24-12 | 6-24-24 | 13-13-13 | 3-12-12 | 5-20-20 | 6-8-12 | 10-20-0 | 6-8-8 | 0-20-20 | 5-10-10 | 4-12-4 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arkansas | 30,375 | 22,976 | 12,982 | 1,567 | 446 | 2,490 | 4,766 | 611 | 1,630 | 13,287 | 52 | 42 | 7,257 | 2,328 | 123 | 55 | 38,944 | 139,876 |
| Louisiana | 19,836 | 4,892 | 22,722 | 26,888 | 1,576 | 10,171 | 4,778 | 13,176 | 8,525 | 36 | 0 | 11,210 | 2,248 | 2,706 | 6,296 | 53 | 11,940 | 147,000 |
| Oklahoma | 16,144 | 18,580 | 644 | 198 | 1,790 | 763 | 253 | 202 | 510 | 0 | 5,439 | 0 | 89 | 765 | 649 | 60 | 12,200 | 58,226 |
| Texas | 81,668 | 88,951 | 6,361 | 11,592 | 18,968 | 1,800 | 4,930 | 552 | 2,973 | 1 | 6,903 | 118 | 74 | 3,114 | 954 | 125 | 57,366 | 286,325 |
| Total | 148,023 | 135,399 | 42,709 | 40,245 | 22,780 | 15,224 | 14,727 | 14,541 | 13,638 | 13,324 | 12,394 | 11,370 | 9,668 | 8,913 | 8,022 | 180 | 120,450 | 631,427 |

Mountain

| | 20-20-0 | 10-20-5 | 10-20-0 | 6-10-4 | 24-20-0 | 20-10-0 | 10-20-10 | 10-18-5 | 10-10-10 | 16-16-8 | 10-10-0 | 10-16-8 | 15-20-0 | 8-24-0 | 20-20-10 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Montana | 1,068 | 0 | 1,321 | 166 | 259 | 298 | 13 | 281 | 0 | 136 | 0 | 0 | 0 | 67 | 0 | 17 | 835 | 4,444 |
| Idaho | 1,497 | 1 | 242 | 201 | 3,260 | 205 | 0 | 356 | 0 | 147 | 25 | 264 | 0 | 405 | 0 | 42 | 1,598 | 8,201 |
| Wyoming | 63 | 0 | 199 | 29 | 0 | 47 | 26 | 30 | 0 | 48 | 0 | 0 | 0 | 6 | 0 | 21 | 922 | 1,370 |
| Colorado | 420 | 0 | 392 | 986 | 0 | 184 | 163 | 1,160 | 309 | 471 | 0 | 1,107 | 0 | 0 | 1,040 | 65 | 7,411 | 13,643 |
| New Mexico | 574 | 93 | 137 | 5 | 0 | 0 | 106 | 0 | 40 | 108 | 79 | 0 | 0 | 344 | 0 | 37 | 1,232 | 2,718 |
| Arizona | 4,873 | 6,371 | 2,711 | 238 | 61 | 2,148 | 1,768 | 0 | 1,236 | 322 | 1,394 | 0 | 1,234 | 327 | 0 | 63 | 9,883 | 32,566 |
| Utah | 91 | 0 | 106 | 2,469 | 41 | 42 | 0 | 87 | 0 | 269 | 0 | 0 | 0 | 0 | 0 | 36 | 1,219 | 4,324 |
| Nevada | 195 | 0 | 203 | 395 | 0 | 156 | 0 | 0 | 94 | 79 | 0 | 0 | 0 | 0 | 0 | 25 | 762 | 1,884 |
| Total | 8,781 | 6,465 | 5,311 | 4,489 | 3,621 | 3,080 | 2,076 | 1,914 | 1,679 | 1,580 | 1,498 | 1,371 | 1,234 | 1,149 | 1,040 | 166 | 23,862 | 69,150 |

Pacific

| | 10-10-10 | 10-10-5 | 17-7-0 | 6-10-4 | 8-8-4 | 15-8-4 | 4-4-2 | 8-24-0 | 10-20-20 | 14-14-7 | 8-10-12 | 6-20-20 | 5-3-2 | 4-10-10 | 5-10-10 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Washington | 750 | 119 | 0 | 2,687 | 0 | 0 | 0 | 4,618 | 3,638 | 0 | 0 | 2,297 | 2,268 | 0 | 3,136 | 125 | 25,612 | 45,125 |
| Oregon | 481 | 0 | 0 | 2,401 | 0 | 0 | 0 | 1,214 | 1,595 | 0 | 0 | 2,260 | 1,664 | 0 | 683 | 74 | 17,873 | 28,171 |
| California | 28,379 | 18,823 | 14,384 | 5,526 | 9,774 | 8,389 | 6,262 | 129 | 10 | 5,034 | 5,001 | 90 | 0 | 3,854 | 0 | 3/ 47 | 196,667 | 302,322 |
| Total | 29,610 | 18,942 | 14,384 | 10,614 | 9,774 | 8,389 | 6,262 | 5,961 | 5,243 | 5,034 | 5,001 | 4,647 | 3,932 | 3,854 | 3,819 | 140 | 240,152 | 375,618 |

Other4/

| | 14-4-10 | 15-4-7 | 14-2-8 | 10-10-8 | 8-6-10 | 6-8-10 | 10-6-20 | 13-3-12 | 12-3-16 | 12-4-10 | 12-6-10 | 12-10-5 | 9-10-5 | 12-6-8 | 16-4-5 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Puerto Rico | 46,937 | 17,212 | 15,134 | 12,432 | 11,277 | 9,973 | 8,812 | 6,296 | 6,151 | 5,596 | 5,577 | 4,715 | 4,417 | 3,388 | 3,226 | 27 | 20,333 | 181,476 |

United States5/

| | 5-10-10 | 4-12-12 | 5-20-20 | 3-12-12 | 10-10-10 | 12-12-12 | 5-10-5 | 3-9-9 | 4-16-16 | 6-12-12 | 4-10-7 | 2-12-12 | 0-20-20 | 6-8-8 | 5-10-15 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| New England | 48,633 | 0 | 0 | 67 | 61,401 | 5,383 | 6,236 | 0 | 0 | 2,001 | 0 | 0 | 18,580 | 4,298 | 6 | 107 | 220,273 | 366,878 |
| Mid. Atlantic | 676,053 | 19,300 | 652 | 26,070 | 175,440 | 17,254 | 181,665 | 310 | 574 | 35,600 | 0 | 25,860 | 67,442 | 84 | 20,540 | 197 | 481,325 | 1,728,169 |
| So. Atlantic | 583,025 | 810,763 | 518 | 57,914 | 66,493 | 3,167 | 102,179 | 498,912 | 887 | 19,639 | 33,672 | 273,107 | 4,271 | 45,168 | 50,776 | 1,387 | 2,065,428 | 4,615,919 |
| E. No. Cent. | 122,831 | 1,815 | 588,060 | 536,865 | 256,236 | 384,711 | 12,470 | 571 | 442,908 | 29,615 | 0 | 0 | 128,283 | 127 | 10,368 | 278 | 811,034 | 3,325,894 |
| W. No. Cent. | 1,435 | 70 | 196,135 | 34,254 | 60,124 | 223,032 | 6,600 | 0 | 19,896 | 10,685 | 0 | 0 | 34,112 | 0 | 3 | 306 | 616,399 | 1,202,745 |
| E. So. Cent. | 34,756 | 189,544 | 19,475 | 38,886 | 46,481 | 12,437 | 77,653 | 299 | 5,206 | 287,461 | 272,869 | 3,474 | 22,505 | 178,227 | 124,246 | 175 | 482,021 | 1,795,540 |
| W. So. Cent. | 8,913 | 112 | 13,638 | 14,541 | 4,506 | 42,709 | 148,023 | 10 | 6 | 3,918 | 0 | 0 | 9,668 | 11,370 | 105 | 182 | 373,908 | 631,427 |
| Mountain | 1 | 26 | 23 | 7 | 1,679 | 560 | 651 | 5 | 0 | 78 | 0 | 0 | 129 | 0 | 0 | 171 | 65,991 | 69,150 |
| Pacific | 3,819 | 0 | 0 | 0 | 29,610 | 1,069 | 268 | 0 | 0 | 42 | 0 | 0 | 721 | 0 | 68 | 148 | 340,021 | 375,618 |
| Total | 1,479,466 | 1,021,630 | 818,501 | 708,604 | 701,970 | 690,322 | 535,745 | 500,107 | 469,477 | 389,039 | 306,541 | 302,441 | 285,711 | 239,274 | 206,112 | 2,028 | 5,456,400 | 14,111,340 |

1/ Exclusive of mixtures not reported by grade. 2/ Including the tonnage of mixtures not reported by grade. 3/ Total number of mixtures exceeds 500 of which only 60 were reported by grade. 4/ Total consumption in Hawaii was 60,207 tons of mixtures, comprising 104 grades, most of which were manufactured to consumers specifications. Total consumption in Alaska was estimated to be less than 200 tons of mixtures. 5/ Exclusive of Alaska, Hawaii, and Puerto Rico.

Table 6. - Ratios of primary nutrients of mixtures consumed in largest tonnage in United States, year ended June 30, 1958, compared with consumption of previous year[1]

| Nutrient ratio[2] | Consumption | | Proportion of quantity of all mixtures[1] | |
|---|---|---|---|---|
| | 1957 | 1958 | 1957 | 1958 |
| | Tons | Tons | Percent | Percent |
| 1:2:2 | 2,185,187 | 2,245,038 | 15.2 | 15.9 |
| 1:4:4 | 2,287,069 | 2,104,639 | 15.8 | 14.9 |
| 1:1:1 | 1,783,217 | 1,868,314 | 12.4 | 13.2 |
| 1:3:3 | 1,490,491 | 1,535,657 | 10.3 | 10.9 |
| 1:2:1 | 836,800 | 800,611 | 5.8 | 5.7 |
| 0:1:1 | 542,682 | 546,498 | 3.8 | 3.9 |
| 1:4:2 | 326,880 | 381,942 | 2.3 | 2.7 |
| 1:2:3 | 233,578 | 331,163 | 1.6 | 2.4 |
| 1:6:6 | 371,395 | 316,992 | 2.6 | 2.3 |
| 4:10:7 | 362,853 | 306,711 | 2.5 | 2.2 |
| Total | 10,420,152 | 10,437,565 | 72.3 | 74.1 |

[1] Excluding Alaska, Hawaii, and Puerto Rico.

[2] N:available $P_2O_5$:$K_2O$.

Compared with 1956-57, the average nitrogen content of all mixtures increased in each of 46 areas and decreased in 5. Available $P_2O_5$ increased or did not change in 32 areas and decreased in 19, while $K_2O$ increased in 29 areas and decreased in 22. In 1957-58, the change to higher concentrations of primary nutrients in mixtures was largest for nitrogen in Hawaii and the New England and West North Central regions and smallest in the Mountain and East South Central regions. For available $P_2O_5$ the change was largest in Hawaii, Puerto Rico, and the Pacific region, and smallest in the South Atlantic and East South Central regions. For $K_2O$ the change was largest in the Mountain and Pacific regions, and smallest in the New England and East North Central regions. The only regions in which the average concentrations of primary nutrients were below that of the preceding year were the West North Central (revised average, 18.76 percent) and West South Central for available $P_2O_5$ and in the West North Central for $K_2O$. The concentration of $P_2O_5$ was also lower in Hawaii and Puerto Rico.

Table 7. - Primary plant nutrient content of mixtures and of materials, as a weighted average, by States and regions, year ended June 30, 1958[1]

Percent

| State and region | Mixtures[2] | | | | Materials | | | | | Total in mixtures and materials |
|---|---|---|---|---|---|---|---|---|---|---|
| | N | Available $P_2O_5$ | $K_2O$ | Total | Single nutrient[3] | | | Multiple nutrient [2] | Total nutrients | |
| | | | | | N | Available $P_2O_5$[4] | $K_2O$ | | | |
| Maine | 8.16 | 11.98 | 12.88 | 33.02 | 29.76 | 20.60 | 51.31 | 9.55 | 22.26 | 32.54 |
| New Hampshire | 6.88 | 12.90 | 13.92 | 33.70 | 28.50 | 20.37 | 55.19 | 10.87 | 22.17 | 31.29 |
| Vermont | 4.80 | 15.32 | 16.44 | 36.56 | 33.64 | 19.93 | 56.55 | 11.16 | 21.59 | 32.05 |
| Massachusetts | 7.26 | 10.65 | 9.89 | 27.80 | 17.30 | 19.35 | 59.55 | 11.05 | 15.68 | 25.14 |
| Rhode Island | 6.29 | 10.45 | 10.39 | 27.13 | 20.17 | 18.78 | 58.98 | 9.43 | 14.83 | 25.65 |
| Connecticut | 6.74 | 10.32 | 10.72 | 27.78 | 27.22 | 21.94 | 59.44 | 12.72 | 19.16 | 25.53 |
| New England | 7.27 | 11.82 | 12.32 | 31.41 | 23.97 | 20.33 | 57.85 | 11.69 | 19.22 | 29.44 |
| New York | 6.60 | 12.04 | 10.36 | 29.00 | 27.90 | 20.37 | 52.10 | 10.16 | 22.85 | 28.19 |
| New Jersey | 5.71 | 10.92 | 10.61 | 27.24 | 24.75 | 19.07 | 43.18 | 13.06 | 21.00 | 26.59 |
| Pennsylvania | 5.33 | 12.43 | 11.68 | 29.44 | 29.97 | 20.08 | 52.49 | 13.15 | 23.29 | 28.83 |
| Delaware | 5.25 | 11.55 | 12.32 | 29.12 | 30.75 | 18.10 | 56.82 | 10.78 | 28.55 | 29.09 |
| District of Columbia | 7.42 | 9.44 | 5.35 | 22.21 | 18.33 | 20.60 | 60.75 | 9.62 | 10.87 | 19.39 |
| Maryland | 4.85 | 11.26 | 10.45 | 26.56 | 30.51 | 17.63 | 51.86 | 11.93 | 25.55 | 26.50 |
| West Virginia | 4.59 | 12.24 | 10.63 | 27.46 | 23.72 | 22.28 | 59.16 | 9.13 | 22.72 | 26.86 |
| Middle Atlantic | 5.68 | 11.91 | 10.93 | 28.52 | 28.22 | 20.15 | 51.21 | 11.74 | 23.03 | 27.95 |
| Virginia | 4.33 | 11.24 | 11.37 | 26.94 | 23.79 | 24.11 | 17.30 | 40.71 | 23.05 | 26.47 |
| North Carolina | 4.51 | 9.47 | 10.58 | 24.56 | 24.65 | 18.87 | 36.38 | 15.66 | 25.05 | 24.65 |
| South Carolina | 4.13 | 10.07 | 10.20 | 24.40 | 21.03 | 15.23 | 59.18 | 14.92 | 23.55 | 24.17 |
| Georgia | 4.43 | 10.76 | 11.46 | 26.65 | 28.24 | 14.45 | 57.45 | 20.15 | 27.45 | 26.81 |
| Florida | 6.00 | 6.75 | 9.01 | 21.76 | 23.43 | 15.77 | 50.86 | 18.77 | 22.03 | 21.80 |
| South Atlantic | 4.84 | 9.29 | 10.39 | 24.52 | 24.56 | 16.69 | 40.51 | 20.00 | 24.64 | 24.54 |
| Ohio | 5.65 | 14.45 | 13.28 | 33.38 | 33.11 | 21.80 | 57.45 | 22.73 | 30.86 | 33.13 |
| Indiana | 6.11 | 16.90 | 15.88 | 38.89 | 39.65 | 21.91 | 59.64 | 44.86 | 42.82 | 39.74 |
| Illinois | 6.78 | 15.20 | 14.36 | 36.34 | 35.33 | 8.18 | 61.77 | 24.22 | 19.26 | 25.78 |
| Michigan | 5.98 | 16.08 | 15.06 | 37.12 | 37.87 | 18.87 | 53.09 | 14.82 | 30.66 | 36.41 |
| Wisconsin | 4.43 | 16.32 | 20.28 | 41.03 | 49.01 | 27.70 | 57.53 | 12.01 | 39.73 | 40.90 |
| East North Central | 5.87 | 15.71 | 15.26 | 36.84 | 37.14 | 10.00 | 60.16 | 21.97 | 25.48 | 33.56 |
| Minnesota | 6.01 | 21.64 | 14.88 | 42.53 | 54.15 | 43.18 | 60.50 | 46.03 | 49.93 | 44.59 |
| Iowa | 6.88 | 18.71 | 12.84 | 38.43 | 43.19 | 32.30 | 59.88 | 34.86 | 39.38 | 38.79 |
| Missouri | 9.57 | 14.18 | 12.36 | 36.11 | 43.00 | 6.13 | 60.80 | 22.95 | 20.18 | 28.63 |
| North Dakota | 13.06 | 28.45 | 5.40 | 46.91 | 43.26 | 45.28 | 60.51 | 49.44 | 48.24 | 47.85 |
| South Dakota | 13.28 | 22.91 | 1.35 | 37.54 | 41.14 | 45.43 | 59.09 | 43.08 | 42.95 | 41.26 |
| Nebraska | 10.77 | 22.96 | 4.09 | 37.82 | 53.07 | 42.94 | 44.26 | 47.19 | 51.67 | 49.78 |
| Kansas | 11.32 | 24.01 | 5.00 | 40.33 | 40.42 | 43.92 | 60.40 | 41.02 | 41.47 | 41.07 |
| West North Central | 8.12 | 18.69 | 12.25 | 39.06 | 47.26 | 20.94 | 60.26 | 43.48 | 37.54 | 38.33 |
| Kentucky | 5.22 | 11.94 | 12.23 | 29.39 | 35.63 | 22.46 | 53.83 | 38.91 | 33.03 | 30.05 |
| Tennessee | 5.56 | 11.88 | 11.35 | 28.79 | 31.85 | 30.03 | 40.56 | 43.29 | 33.37 | 29.70 |
| Alabama | 3.62 | 11.21 | 10.37 | 25.20 | 25.80 | 13.46 | 59.47 | 48.70 | 24.18 | 24.92 |
| Mississippi | 6.08 | 9.89 | 8.20 | 24.17 | 37.92 | 12.30 | 59.87 | 43.44 | 30.89 | 28.15 |
| East South Central | 4.80 | 11.35 | 10.73 | 26.88 | 32.88 | 15.79 | 51.97 | 44.28 | 29.40 | 27.68 |
| Arkansas | 6.59 | 14.84 | 13.61 | 35.04 | 38.57 | 37.65 | 60.18 | 38.10 | 41.85 | 38.57 |
| Louisiana | 7.03 | 13.63 | 11.55 | 32.21 | 40.60 | 16.38 | 54.80 | 33.69 | 37.73 | 34.79 |
| Oklahoma | 8.15 | 18.20 | 7.37 | 33.72 | 37.83 | 26.23 | 55.82 | 39.23 | 31.62 | 32.76 |
| Texas | 8.53 | 16.19 | 8.01 | 32.73 | 48.75 | 27.13 | 46.93 | 38.51 | 42.55 | 38.31 |
| West South Central | 7.72 | 15.48 | 10.01 | 33.21 | 44.05 | 26.72 | 58.05 | 38.39 | 40.76 | 37.19 |
| Montana | 13.95 | 20.97 | 1.35 | 36.27 | 42.94 | 44.56 | 58.18 | 47.21 | 44.72 | 43.72 |
| Idaho | 18.10 | 19.70 | 2.41 | 40.21 | 31.78 | 43.73 | 61.79 | 39.02 | 35.92 | 36.26 |
| Wyoming | 13.65 | 20.95 | 2.04 | 36.64 | 42.16 | 44.47 | 60.50 | 69.49 | 46.60 | 45.54 |
| Colorado | 12.76 | 19.28 | 8.07 | 40.11 | 39.99 | 47.29 | 57.78 | 53.80 | 43.86 | 43.21 |
| New Mexico | 12.25 | 20.75 | 4.38 | 37.38 | 46.66 | 36.38 | 48.99 | 38.62 | 41.14 | 40.89 |
| Arizona | 13.46 | 18.22 | 3.89 | 35.57 | 37.30 | 34.59 | 54.02 | 39.55 | 37.75 | 37.37 |
| Utah | 8.60 | 14.52 | 4.72 | 27.84 | 34.04 | 40.86 | 60.67 | 44.59 | 37.54 | 36.47 |
| Nevada | 12.37 | 12.74 | 3.18 | 28.29 | 31.41 | 45.02 | 57.76 | 33.67 | 35.54 | 33.18 |
| Mountain | 13.53 | 18.56 | 4.39 | 36.48 | 37.00 | 42.10 | 57.43 | 41.98 | 39.29 | 38.90 |
| Washington | 9.46 | 14.75 | 8.94 | 33.15 | 39.27 | 33.97 | 55.74 | 35.23 | 38.58 | 37.56 |
| Oregon | 9.99 | 16.32 | 8.67 | 34.98 | 28.83 | 23.28 | 59.58 | 37.79 | 30.41 | 31.13 |
| California | 10.99 | 11.49 | 6.57 | 29.05 | 30.36 | 28.02 | 54.03 | 12.83 | 23.92 | 25.01 |
| Pacific | 10.74 | 12.24 | 7.01 | 29.99 | 31.64 | 28.44 | 55.33 | 15.65 | 26.53 | 27.24 |
| Average for 48 States & D. C. | 5.85 | 12.65 | 11.72 | 30.22 | 34.69 | 17.94 | 55.60 | 25.38 | 30.15 | 30.20 |
| Hawaii | 12.55 | 5.66 | 18.51 | 36.72 | 25.58 | 19.79 | 58.88 | 62.19 | 31.69 | 34.22 |
| Puerto Rico | 11.96 | 5.44 | 10.26 | 27.66 | 22.23 | 22.31 | 53.13 | 75.60 | 22.44 | 26.48 |
| United States: 1957-58 | 5.96 | 12.53 | 11.73 | 30.22 | 34.43 | 17.95 | 55.67 | 25.48 | 30.11 | 30.18 |
| 1956-57 | 5.74 | 12.36 | [5] 11.43 | [5] 29.53 | 32.62 | 17.92 | 55.20 | 24.14 | 28.81 | 29.30 |
| 1955-56 | 5.39 | 12.08 | 11.20 | 28.67 | 32.36 | 16.55 | 55.64 | 22.71 | 27.44 | 28.29 |

[1] Excluding fertilizers not guaranteed to contain one or more of the primary plant nutrients, N, $P_2O_5$, or $K_2O$.
[2] Guaranteed to contain two or more of the primary plant nutrients. [3] Guaranteed to contain one of the primary plant nutrients. [4] Including 2 percent of the colloidal phosphate and 3 percent of the phosphate rock marketed for direct application. [5] Revised.

Table 8. - Materials for direct application consumed in States and regions, by class and by product, year ended June 30, 1958[1]

Tons

| State and region | Chemical nitrogen materials | | | | | | | | | Natural organics[2] | Phosphate materials[2] | | | | Potash materials | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Ammonia (anhydrous) | Ammonium nitrate | Ammonium nitrate-limestone mixtures | Ammonium sulfate | Calcium cyanamide | Nitrogen solutions and aqua ammonia[2] | Sodium nitrate | Urea | Other[2] | | Phosphate rock[3] | Superphosphates | | Other | Chlorides 50-62 percent grades | Other[2] | Primary nutrient materials | Secondary and trace nutrient materials[2] |
| | | | | | | | | | | | | Grades 22 percent and under | Grades over 22 percent | | | | | |
| Maine | 0 | 1,030 | 1 | 80 | 248 | 224 | 144 | 117 | 29 | 875 | 3 | 4,938 | 1 | 88 | 146 | 45 | 7,969 | 25 |
| New Hampshire | 0 | 538 | 13 | 1 | 136 | 222 | 71 | 49 | 11 | 858 | 10 | 2,022 | 10 | 61 | 141 | 42 | 4,185 | 8 |
| Vermont | 0 | 1,020 | 29 | 4 | 3 | 142 | 22 | 159 | 8 | 199 | 43 | 15,367 | 0 | 35 | 311 | 2 | 17,344 | 13 |
| Massachusetts | 0 | 1,250 | 103 | 383 | 292 | 10 | 769 | 138 | 71 | 11,495 | 158 | 3,036 | 10 | 748 | 537 | 6 | 19,006 | 84 |
| Rhode Island | 0 | 102 | 5 | 1 | 144 | 0 | 63 | 73 | 36 | 1,343 | 12 | 185 | 0 | 67 | 38 | 1 | 2,070 | 29 |
| Connecticut | 0 | 840 | 11 | 62 | 556 | 306 | 513 | 540 | 81 | 10,325 | 48 | 4,739 | 90 | 726 | 657 | 582 | 20,076 | 30 |
| New England | 0 | 4,780 | 162 | 531 | 1,379 | 904 | 1,582 | 1,076 | 236 | 25,095 | 274 | 30,287 | 111 | 1,725 | 1,830 | 678 | 70,650 | 189 |
| New York | 848 | 15,215 | 761 | 272 | 4,105 | 1,177 | 3,643 | 1,301 | 825 | 17,009 | 757 | 32,784 | 544 | 888 | 1,758 | 1,296 | 83,183 | 742 |
| New Jersey | 362 | 2,438 | 265 | 387 | 1,621 | 253 | 2,201 | 601 | 775 | 7,462 | 227 | 3,309 | 25 | 1,840 | 661 | 432 | 22,859 | 81 |
| Pennsylvania | 696 | 10,376 | 129 | 3,491 | 1,287 | 578 | 1,493 | 799 | 501 | 9,676 | 4,706 | 23,904 | 1,941 | 1,735 | 1,495 | 839 | 63,646 | 2,354 |
| Delaware | 50 | 709 | 292 | 1 | 527 | 652 | 154 | 106 | 2 | 254 | 200 | 296 | 0 | 87 | 158 | 18 | 3,506 | 170 |
| District of Columbia | 0 | 11 | 0 | 2 | 0 | 0 | 14 | 15 | 14 | 878 | 0 | 10 | 0 | 49 | 1 | 0 | 994 | 0 |
| Maryland | 529 | 2,061 | 713 | 39 | 1,482 | 1,032 | 1,596 | 800 | 85 | 1,615 | 1,591 | 3,175 | 8 | 613 | 589 | 190 | 16,118 | 590 |
| West Virginia | 0 | 1,006 | 35 | 307 | 11 | 0 | 1,206 | 39 | 14 | 510 | 91 | 5,490 | 407 | 60 | 182 | 9 | 9,367 | 2 |
| Middle Atlantic | 2,485 | 31,816 | 2,195 | 4,499 | 9,033 | 3,692 | 10,307 | 3,661 | 2,216 | 37,404 | 7,572 | 68,968 | 2,925 | 5,272 | 4,844 | 2,784 | 199,673 | 3,939 |
| Virginia | 737 | 7,608 | 18,289 | 1,368 | 978 | 8,598 | 14,618 | 221 | 280 | 918 | 1,513 | 6,443 | 304 | 3,025 | 3,118 | 13,479 | 81,497 | 14,787 |
| North Carolina | 7,895 | 15,712 | 100,453 | 204 | 4,035 | 33,845 | 65,584 | 475 | 1 | 2,923 | 525 | 12,776 | 36 | 4,577 | 9,671 | 10,938 | 269,650 | 40,681 |
| South Carolina | 1,699 | 19,803 | 61,303 | 323 | 1,206 | 21,469 | 63,209 | 87 | 809 | 1,263 | 320 | 10,642 | 89 | 5,584 | 14,614 | 1,507 | 203,927 | 3,426 |
| Georgia | 11,650 | 73,915 | 37,923 | 3,746 | 817 | 13,908 | 56,970 | 185 | 183 | 2,004 | 4,417 | 13,392 | 86 | 9,306 | 6,008 | 1,399 | 235,909 | 37,761 |
| Florida | 3,194 | 19,331 | 5,976 | 6,032 | 1,822 | 6,774 | 41,433 | 2,846 | 9,717 | 14,771 | 11,746 | 7,176 | 5,190 | 4,614 | 2,195 | 17,134 | 159,951 | 5,019 |
| South Atlantic | 25,175 | 136,369 | 223,944 | 11,673 | 8,858 | 84,594 | 241,814 | 3,814 | 10,990 | 21,879 | 18,521 | 50,429 | 5,705 | 27,106 | 35,606 | 44,457 | 950,934 | 101,674 |
| Ohio | 3,983 | 21,508 | 2 | 15,544 | 456 | 5,295 | 645 | 1,942 | 1,054 | 8,460 | 7,911 | 15,777 | 5,939 | 4,410 | 8,789 | 943 | 102,658 | 332 |
| Indiana | 18,555 | 44,497 | 1,403 | 14,158 | 365 | 25,377 | 121 | 6,010 | 375 | 2,262 | 20,596 | 4,900 | 16,042 | 4,979 | 68,540 | 3,439 | 231,619 | 128 |
| Illinois | 25,386 | 51,412 | 366 | 63,914 | 81 | 20,422 | 79 | 1,360 | 374 | 12,599 | 530,886 | 27,800 | 51,694 | 14,080 | 97,413 | 101 | 897,967 | 1,000 |
| Michigan | 4,104 | 14,974 | 254 | 2,666 | 119 | 5,846 | 537 | 2,484 | 808 | 14,513 | 3,851 | 8,745 | 1,674 | 2,360 | 6,416 | 2,632 | 71,983 | 927 |
| Wisconsin | 5,123 | 5,707 | 0 | 826 | 7 | 4,694 | 0 | 154 | 309 | 8,810 | 3,122 | 1,844 | 1,332 | 2,305 | 10,219 | 889 | 45,341 | 146 |
| East North Central | 57,151 | 138,098 | 2,025 | 97,108 | 1,028 | 61,634 | 1,382 | 11,950 | 2,920 | 46,644 | 566,366 | 59,066 | 76,681 | 28,134 | 191,377 | 8,004 | 1,349,568 | 2,533 |
| Minnesota | 19,573 | 15,433 | 105 | 387 | 0 | 14,551 | 0 | 444 | 121 | 4,158 | 1,322 | 4,950 | 25,691 | 24,249 | 12,044 | 3 | 123,031 | 64 |
| Iowa | 18,114 | 49,526 | 21 | 3,900 | 0 | 19,108 | 0 | 591 | 176 | 5,359 | 6,989 | 32,182 | 31,738 | 20,773 | 13,865 | 75 | 202,417 | 78 |
| Missouri | 21,508 | 65,056 | 0 | 4,425 | 188 | 12,996 | 286 | 224 | 96 | 4,982 | 209,047 | 1,793 | 8,963 | 7,506 | 18,195 | 80 | 355,345 | 147 |
| North Dakota | 555 | 2,071 | 0 | 32 | 0 | 43 | 0 | 40 | 10 | 68 | 0 | 13 | 17,758 | 55,196 | 2 | 0 | 75,788 | 0 |
| South Dakota | 1,374 | 5,941 | 0 | 80 | 0 | 1,002 | 0 | 105 | 79 | 340 | 40 | 195 | 5,259 | 9,140 | 22 | 0 | 23,577 | 1 |
| Nebraska | 68,517 | 52,492 | 0 | 1,827 | 0 | 43,262 | 0 | 1,668 | 83 | 1,026 | 754 | 1,634 | 17,948 | 10,554 | 271 | 199 | 200,235 | 76 |
| Kansas | 9,441 | 52,521 | 47 | 1,120 | 1 | 1,112 | 0 | 724 | 35 | 753 | 176 | 782 | 25,449 | 35,310 | 995 | 0 | 128,466 | 126 |
| West North Central | 139,082 | 243,040 | 173 | 11,771 | 189 | 92,074 | 286 | 3,796 | 600 | 16,686 | 218,328 | 41,549 | 132,806 | 162,728 | 45,394 | 357 | 1,108,859 | 492 |
| Kentucky | 3,137 | 32,838 | 498 | 1,003 | 1,356 | 1,631 | 1,657 | 169 | 25 | 522 | 11,371 | 19,745 | 1,224 | 6,927 | 7,973 | 6,169 | 96,245 | 131 |
| Tennessee | 5,440 | 33,839 | 1,040 | 452 | 1,771 | 120 | 19,057 | 22 | 7 | 1,013 | 1,192 | 7,855 | 3,185 | 9,450 | 10,476 | 8,122 | 103,041 | 431 |
| Alabama | 4,222 | 73,331 | 24,536 | 10,013 | 217 | 742 | 67,994 | 12 | 12 | 670 | 1,496 | 23,238 | 369 | 37,110 | 8,551 | 196 | 252,709 | 2,028 |
| Mississippi | 39,033 | 144,069 | 4,723 | 454 | 6,298 | 6,973 | 41,260 | 1,009 | 139 | 35 | 2,558 | 24,729 | 1,433 | 87,083 | 14,282 | 597 | 374,675 | 55 |
| East South Central | 51,832 | 284,077 | 30,797 | 11,922 | 9,642 | 9,466 | 129,968 | 1,212 | 183 | 2,240 | 16,617 | 75,567 | 6,211 | 140,570 | 41,282 | 15,084 | 826,670 | 2,645 |
| Arkansas | 21,373 | 41,737 | 3 | 4,004 | 4,692 | 7,634 | 25,404 | 7,322 | 2 | 65 | 207 | 4,439 | 8,717 | 1,633 | 23,407 | 91 | 150,730 | 2 |
| Louisiana | 27,132 | 33,130 | 321 | 11,346 | 1,180 | 9,220 | 21,585 | 1,426 | 475 | 448 | 4,533 | 6,080 | 2,266 | 6,569 | 2,851 | 466 | 129,028 | 63 |
| Oklahoma | 1,464 | 6,007 | 20 | 1,518 | 0 | 258 | 572 | 295 | 7 | 1,413 | 2,967 | 17,161 | 7,868 | 8,645 | 458 | 49 | 48,702 | 0 |
| Texas | 89,958 | 25,268 | 190 | 80,910 | 595 | 13,418 | 1,596 | 9,657 | 120 | 6,431 | 11,622 | 31,028 | 24,079 | 78,146 | 2,193 | 1,246 | 376,457 | 5,010 |
| West South Central | 139,927 | 106,142 | 534 | 97,778 | 6,467 | 30,530 | 49,157 | 18,700 | 604 | 8,357 | 19,329 | 58,708 | 42,930 | 94,993 | 28,909 | 1,852 | 704,917 | 5,075 |
| Montana | 1,574 | 4,127 | 1 | 483 | 0 | 666 | 0 | 109 | 21 | 240 | 0 | 0 | 18,746 | 7,305 | 41 | 14 | 33,327 | 443 |
| Idaho | 6,142 | 17,912 | 1 | 17,371 | 238 | 14,593 | 30 | 401 | 171 | 534 | 120 | 661 | 19,977 | 14,110 | 952 | 40 | 93,253 | 6,579 |
| Wyoming | 1,003 | 3,350 | 0 | 632 | 0 | 4 | 0 | 525 | 10 | 18 | 0 | 50 | 4,047 | 1,859 | 6 | 0 | 11,504 | 0 |
| Colorado | 5,896 | 23,583 | 341 | 4,062 | 75 | 1,747 | 0 | 2,099 | 357 | 1,485 | 40 | 167 | 14,122 | 10,549 | 388 | 126 | 65,037 | 2,909 |
| New Mexico | 4,688 | 2,608 | 49 | 3,801 | 0 | 1,555 | 0 | 2,761 | 6 | 1,285 | 0 | 5,724 | 8,549 | 6,001 | 77 | 72 | 37,176 | 42 |
| Arizona | 21,201 | 8,295 | 3,227 | 30,168 | 859 | 13,343 | 422 | 12,691 | 11,900 | 3,352 | 40 | 6,648 | 3,063 | 39,670 | 100 | 907 | 155,886 | 20,484 |
| Utah | 2,088 | 10,090 | 2 | 6,108 | 1 | 246 | 0 | 388 | 459 | 476 | 0 | 2,395 | 8,397 | 4,389 | 54 | 0 | 35,093 | 292 |
| Nevada | 162 | 307 | 1 | 545 | 0 | 451 | 41 | 60 | 12 | 252 | 0 | 0 | 838 | 1,224 | 14 | 7 | 3,914 | 15,961 |
| Mountain | 42,754 | 70,272 | 3,622 | 63,170 | 1,173 | 32,605 | 493 | 19,034 | 12,936 | 7,642 | 200 | 15,645 | 77,739 | 85,107 | 1,632 | 1,166 | 435,190 | 46,710 |
| Washington | 36,926 | 30,475 | 10 | 13,243 | 230 | 60,866 | 120 | 975 | 2,628 | 4,527 | 920 | 5,772 | 7,221 | 26,614 | 2,929 | 1,124 | 194,580 | 8,034 |
| Oregon | 7,901 | 25,923 | 7 | 37,226 | 913 | 35,246 | 5 | 3,701 | 2,423 | 814 | 331 | 7,615 | 1,450 | 25,236 | 1,689 | 154 | 150,634 | 13,339 |
| California | 79,429 | 45,916 | 43 | 175,535 | 7,436 | 249,910 | 261 | 22,368 | 30,717 | [4] 321,854 | 283 | 58,537 | 18,857 | 100,104 | 1,411 | 5,977 | 1,118,638 | 752,602 |
| Pacific | 124,256 | 102,314 | 60 | 226,004 | 8,579 | 346,022 | 386 | 27,044 | 35,768 | 327,195 | 1,534 | 71,924 | 27,528 | 151,954 | 6,029 | 7,255 | 1,463,852 | 773,975 |
| Total | 582,662 | 1,116,908 | 263,512 | 524,456 | 46,348 | 661,521 | 435,375 | 90,287 | 66,453 | 493,142 | 848,741 | 472,143 | 372,636 | 697,589 | 356,903 | 81,637 | 7,110,313 | 937,232 |
| Hawaii | 0 | 0 | 0 | 6,522 | 0 | 24,372 | 133 | 7,791 | 111 | 110 | 2,804 | 4,192 | 1,610 | 2,447 | 7,798 | 1,865 | 59,755 | 2,496 |
| Puerto Rico | 772 | 0 | 0 | 46,133 | 0 | 3,715 | 1 | 305 | 0 | 0 | 0 | 1,555 | 117 | 11 | 89 | 246 | 52,944 | 0 |
| United States: 1957-58 | 583,434 | 1,116,908 | 263,512 | 577,111 | 46,348 | 689,608 | 435,509 | 98,383 | 66,564 | 493,252 | 851,545 | 477,890 | 374,363 | 700,047 | 364,790 | 83,748 | 7,223,012 | 939,728 |
| 1956-57 | 452,702 | 1,105,196 | 300,586 | 516,183 | 46,978 | 627,310 | 493,159 | 108,916 | 55,398 | 479,671 | 836,183 | 559,998 | 373,969 | 645,813 | 376,169 | 84,730 | 7,062,961 | 943,243 |
| 1955-56 | 419,354 | 940,666 | 313,928 | 414,398 | 65,818 | 418,843 | 542,804 | 92,373 | 64,668 | 472,706 | 930,914 | 607,026 | 325,723 | 614,652 | 322,411 | 82,428 | 6,628,712 | 789,605 |

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[1] Excluding lime and the quantities used for manufacture of commercial mixtures. [2] The principal kinds are shown separately in table 1, by regions. [3] Including colloidal phosphate, the quantity of which is shown separately in table 1, by regions. [4] Including an estimated 260,000 tons of dried manures.

## MATERIALS

In 1957-58, the total consumption of materials for direct application, including secondary and trace nutrient materials, amounted to 8,162,740 tons—36.3 percent of all fertilizers used, compared with 35.3 percent for the preceding year. The quantity of these materials was 156,536 tons (2.0 percent) more than that (8,006,204 tons) in 1956-57. The tonnages of the principal grades and products in 1957-58 are shown in tables 1 and 8, and the changes from the preceding year are summarized in table 9.

Table 9. - Consumption of classes of materials in United States, years ended June 30, 1957 and 1958, with comparisons

| Class | Consumption | | Change in consumption | |
|---|---|---|---|---|
| | 1957 | 1958 | | |
| | Tons | Tons | Tons | Percent |
| Chemical nitrogen materials | 3,706,428 | 3,877,377 | 170,949 | 4.6 |
| Natural organic materials | 479,671 | 493,252 | 13,581 | 2.8 |
| Phosphate materials | 2,415,963 | 2,403,845 | -12,118 | - .5 |
| Potash materials | 460,899 | 448,538 | -12,361 | -2.7 |
| Secondary & Trace nutrient materials | 943,243 | 939,728 | - 3,515 | - .4 |
| Total | 8,006,204 | 8,162,740 | 156,536 | 2.0 |

Compared with the previous year, the chemical nitrogen materials and the natural organic materials were consumed in larger amounts, while the use of phosphate, potash, and secondary and trace nutrient materials decreased. The changes in consumption of chemical nitrogen, natural organic, and phosphate materials followed the general patterns of the past 5 years. The decreased consumption of potash materials was a reversal of the pattern.

The increase in the consumption of chemical nitrogen materials was due largely to greater use of anhydrous ammonia, nitrogen solutions, and ammonium sulfate. The larger tonnages of these materials together with increases in ammonium nitrate and other chemical nitrogen products, more than offset the decreased tonnages of ammonium nitrate-limestone mixtures, sodium nitrate, and urea. Compared with 1956-57, the changes in the areal use of anhydrous ammonia ranged from a decrease of 14.6 percent in Puerto Rico to an increase of 65.4 percent in the East North Central region. The percentage increases in this region, the West North Central (43.5 percent), West South Central (32.2 percent), and Mountain (30.4 percent) regions were all above the national increase of 28.9 percent. The total consumption of nitrogen solutions and aqua ammonia was 9.9 percent higher in 1957-58; the increase was only 4.4 percent in the Pacific region, the area of greatest use, but more than 50 percent in the New England, East North Central, West North Central, and West South Central regions. On the other hand, the use of such materials decreased greatly in Hawaii, owing to labor troubles on the sugar plantations.

The change in consumption of ammonium sulfate ranged from a decrease of 34.2 percent in Hawaii to an increase of 111.8 percent in the East South Central region; total use was 11.8 percent higher than for the preceding year. While these extremes were in areas using relatively small tonnages, the regions of principal consumption showed increases of 5.4 (East North Central), 8.8 (Pacific), 12.4 (Mountain), and 29.2 percent (West South Central). The total uses of ammonium nitrate-limestone mixtures and sodium nitrate decreased 12.3 percent and 11.7 percent, respectively, in 1957-58. These decreases were mostly in the South Atlantic and East South Central regions, the areas of principal use, in which the total tonnages of fertilizers have generally decreased over the past several years. The use of urea decreased 9.7 percent and was generally lower in most of the tabulated areas.

Consumption of the principal natural organic products (composts, dried manures, sewage sludges) was only a little higher in 1957-58, while the use of most of the other products in this category was generally lower than in the preceding year.

The total consumption of phosphate materials decreased 12,118 tons (0.5 percent) from that in 1956-57. The principal change was in the use of colloidal phosphate and phosphate rock, an increase of 15,362 tons (1.8 percent). The use of superphosphates (22 percent grades and under) decreased 82,108 tons (14.7 percent); the consumption in each of 41 areas was lower than in 1956-57. Although the use of grades of superphosphate containing over 22 percent $P_2O_5$ was lower in 27 areas, the increases in the other areas were sufficient to give a slightly higher net total (394 tons, 0.1 percent).

Among the other phosphate materials, the 11-48, 16-20, 27-14, and 21-53 grades of ammoniated phosphates (table 10) were the principal products consumed in increased amounts. The tonnages of these materials were notably higher in most States of the West North Central, West South Central, Mountain, and Pacific regions, where they are principally used. The total use of the 13-39 grade was 180 tons (0.4 percent) lower than in 1956-57; although there were increases in many areas, the decreased use in most of the West South Central States resulted in a slightly lower total use. The consumption of basic slag, which finds its greatest use in the South Atlantic and East South Central regions, was lower by 18,440 tons (11.3 percent).

The total consumption of potash materials in 1957-58 was lower than in 1956-57 by 12,361 tons (2.7 percent). This is the first time in many years that the total tonnage of these products has not shown an annual increase. The use of the 50-62 percent grades of potassium chloride, which comprised 81.3 percent of the total consumption of potash materials, decreased 11,379 tons (3.0 percent). The decreases were principally in the East South Central, West South Central, and South Atlantic regions and in Hawaii. Consumption increased in four regions, and there was only a slight change elsewhere. The use of lime-potash mixtures and manure salts decreased while increases were shown for potassium-magnesium sulfate (28 percent), potassium-sodium nitrate (58 percent), and potassium sulfate (2 percent).

The quantities of most of the secondary and trace nutrient materials were lower in 1957-58 than in 1956-57. The use of gypsum (888,702 tons) comprising 95 percent of the total tonnage of such materials decreased only 0.3 percent.

The weighted average primary nutrient contents of the direct application materials used in each of the areas are shown in table 7. These averages are computed from the compositions and tonnages of the individual materials. In 1957-58, the national averages of materials containing only N, $P_2O_5$, or $K_2O$, were 34.43, 17.95 (available $P_2O_5$), and 55.67 percent, respectively; for multiple-nutrient materials the average was 25.48 percent, for all materials 30.11 percent. The corresponding averages in 1956-57 were 32.62, 17.92, 55.20, 24.14, and 28.81 percent. The higher national averages in 1957-58 reflect generally the greater use of the higher analysis products. The increase in the nitrogen average was due principally to the larger tonnages of anhydrous ammonia and nitrogen solutions. The averages for materials containing only $P_2O_5$ or $K_2O$ showed little change from those in 1956-57. The increase in the average for the multiple-nutrient materials was principally due to the increased use of ammoniated phosphates and activated sewage sludge, while the tonnages of the lower grade products (dried manures, etc.) did not change appreciably.

Table 10. - Ammoniated phosphates consumed in States and regions as direct-application materials, by grades, year ended June 30, 1958[1]

Tons

| State and region | Grade[2] | | | | |
|---|---|---|---|---|---|
| | 11-48 | 13-39 | 16-20 | 27-14 | 21-53 |
| New York | 78 | 0 | 0 | 0 | 0 |
| New Jersey | 22 | 0 | 0 | 0 | 0 |
| Pennsylvania | 343 | 0 | 0 | 0 | 109 |
| Maryland | 11 | 0 | 0 | 0 | 4 |
| Middle Atlantic | 454 | 0 | 0 | 0 | 113 |
| Virginia | 40 | 0 | 0 | 0 | 999 |
| North Carolina | 0 | 0 | 0 | 0 | 181 |
| South Carolina | 0 | 0 | 0 | 0 | 75 |
| Georgia | 0 | 0 | 0 | 0 | 285 |
| Florida[3] | 5 | 0 | 0 | 0 | 1 |
| South Atlantic | 45 | 0 | 0 | 0 | 1,541 |
| Ohio | 2,031 | 0 | 194 | 0 | 638 |
| Indiana | 3,823 | 65 | 62 | 0 | 764 |
| Illinois | 2,388 | 134 | 680 | 0 | 1,777 |
| Michigan | 1,239 | 4 | 0 | 0 | 422 |
| Wisconsin | 147 | 17 | 12 | 0 | 195 |
| East North Cent. | 9,628 | 220 | 948 | 0 | 3,796 |
| Minnesota | 10,733 | 2,338 | 4,757 | 464 | 937 |
| Iowa | 1,918 | 2,708 | 9,257 | 831 | 602 |
| Missouri | 1,369 | 216 | 1,057 | 0 | 12 |
| North Dakota | 26,303 | 3,722 | 23,648 | 1,276 | 191 |
| South Dakota | 2,265 | 223 | 5,573 | 626 | 307 |
| Nebraska | 1,619 | 1,325 | 5,027 | 15 | 2,309 |
| Kansas | 818 | 7,840 | 25,316 | 0 | 1,144 |
| West North Cent. | 45,025 | 18,372 | 74,635 | 3,212 | 5,502 |
| Kentucky | 2 | 18 | 0 | 0 | 446 |
| Tennessee | 0 | 0 | 0 | 0 | 1,495 |
| Alabama | 0 | 0 | 0 | 0 | 1,263 |
| Mississippi | 9 | 6 | 73 | 0 | 252 |
| East South Cent. | 11 | 24 | 73 | 0 | 3,456 |
| Arkansas | 69 | 113 | 747 | 0 | 2 |
| Louisiana | 35 | 12 | 3,082 | 0 | 0 |
| Oklahoma | 517 | 3,206 | 4,753 | 0 | 116 |
| Texas | 2,918 | 11,604 | 58,735 | 0 | 2,909 |
| West South Cent. | 3,539 | 14,935 | 67,317 | 0 | 3,027 |
| Montana | 2,700 | 81 | 2,494 | 401 | 0 |
| Idaho | 785 | 375 | 9,693 | 2,750 | 40 |
| Wyoming | 93 | 38 | 145 | 16 | 1,173 |
| Colorado | 154 | 986 | 1,071 | 0 | 4,035 |
| New Mexico | 675 | 1,058 | 3,941 | 0 | 327 |
| Arizona | 3,133 | 3,074 | 27,127 | 645 | 2,199 |
| Utah | 1,575 | 23 | 1,660 | 414 | 24 |
| Nevada | 43 | 124 | 865 | 110 | 5 |
| Mountain | 9,158 | 5,759 | 46,996 | 4,336 | 7,803 |
| Washington | 1,894 | 653 | 14,486 | 7,616 | 259 |
| Oregon | 1,710 | 662 | 22,031 | 229 | 130 |
| California[4] | 10,507 | 4,851 | 68,268 | 2,290 | 684 |
| Pacific | 14,111 | 6,166 | 104,785 | 10,135 | 1,073 |
| Hawaii | 1,095 | 0 | 261 | 0 | 1,091 |
| Puerto Rico | 0 | 0 | 0 | 0 | 11 |
| United States | 83,066 | 45,476 | 295,015 | 17,683 | 27,413 |

[1] There was no consumption in States not listed. [2] Including the quantity of these grades reported as mixtures. [3] In addition, 37 tons of 4-16-0 grade ammoniated superphosphate was consumed. [4] In addition, 3,012 tons of 4-16-0 grade ammoniated superphosphate was consumed.

## PRIMARY PLANT NUTRIENTS

The fertilizers used in 1957-58 contained a total of 6,512,387 tons of N, available $P_2O_5$, and $K_2O$. The quantities of these nutrients consumed in each of the areas are shown in table 11, and the changes from the preceding year are given in table 12. The consumption of the nutrients was 135,185 tons (2.1 percent) more than that (6,377,202 tons, revised) in 1956-57. In 1957-58 the nutrients comprised 2,284,359 tons of N, 2,292,890 tons of available $P_2O_5$, and 1,935,138 tons of $K_2O$. Compared with the preceding year, nitrogen increased 149,072 tons (7.0 percent), but decreases occurred in available $P_2O_5$ (12,102 tons, 0.5 percent), and $K_2O$ (1,785 tons, 0.1 percent). As shown in table 7, the national weighted average of primary nutrients in all fertilizers containing these nutrients was 30.18 percent in 1957-58 and 29.30 percent in the preceding year. Although the tonnage of fertilizers containing the nutrients in 1957-58 was 0.9 percent less than in 1956-57, the quantity of primary nutrients supplied was 2.1 percent more.

Mixtures comprised 66.5 percent of the total tonnage of primary nutrient fertilizers and supplied 37.4 percent of the N, 78.4 percent of the available $P_2O_5$, and 87.0 percent of the $K_2O$. Compared with 1956-57, mixtures supplied 1.4 and 0.2 percent more N and $K_2O$ and 1.0 percent less available $P_2O_5$. While the tonnage of mixtures decreased 2.4 percent in 1957-58, the total content of N, available $P_2O_5$, and $K_2O$ was only 0.1 percent lower. As shown in table 7, the national weighted average of primary nutrients in mixtures was 30.22 percent in 1957-58 and 29.53 percent (revised) in the preceding year.

Primary nutrient materials used for direct application comprised 33.5 percent of the total tonnage of fertilizers containing such nutrients; they accounted for 62.6 percent of the N, 21.6 percent of the available $P_2O_5$, and 13.0 percent of the $K_2O$. The quantities of N and available $P_2O_5$ supplied by direct application materials were, respectively, 10.6 and 1.4, percent higher, while that of $K_2O$ was 1.8 percent lower, than in the preceding year. Although the tonnage of materials containing these nutrients increased 2.3 percent in 1957-58, the total quantity of N, available $P_2O_5$, and $K_2O$ supplied thereby, increased 6.9 percent. This is reflected in the national average of the total nutrient content of materials, shown in table 7, which was 30.11 percent in 1957-58 and 28.81 percent in the preceding year.

Although the national total of primary nutrients was higher in 1957-58 than in 1956-57, there were decreases in consumption of one or more of the nutrients, supplied by either mixtures or materials, in 46 of the

Table 11. - Primary plant nutrients consumed in mixtures and in mixtures and materials combined, by State and region, year ended June 30, 1958

Tons

| State and region | Consumption of nutrients in mixtures | | | | | Consumption of nutrients in mixtures and materials | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | N | P2O5 | | K2O | Total N, available P2O5, and K2O | N | P2O5 | | K2O | Total N, available P2O5, and K2O |
| | | Available | Total | | | | Available 1/ | Total 2/ | | |
| Maine | 13,936 | 20,472 | 21,142 | 22,010 | 56,418 | 14,533 | 21,534 | 22,235 | 22,125 | 58,192 |
| New Hampshire | 1,092 | 2,047 | 2,116 | 2,209 | 5,348 | 1,446 | 2,511 | 2,596 | 2,321 | 6,278 |
| Vermont | 1,931 | 6,157 | 6,346 | 6,607 | 14,695 | 2,409 | 9,243 | 9,529 | 6,787 | 18,439 |
| Massachusetts | 4,926 | 7,230 | 7,518 | 6,714 | 18,870 | 6,368 | 8,327 | 8,746 | 7,156 | 21,851 |
| Rhode Island | 957 | 1,589 | 1,657 | 1,580 | 4,126 | 1,137 | 1,675 | 1,714 | 1,621 | 4,433 |
| Connecticut | 3,829 | 5,868 | 6,151 | 6,094 | 15,791 | 5,343 | 7,431 | 7,815 | 6,864 | 19,638 |
| New England | 26,671 | 43,363 | 44,930 | 45,214 | 115,248 | 31,236 | 50,721 | 52,635 | 46,874 | 128,831 |
| New York | 36,427 | 66,417 | 68,939 | 57,134 | 159,978 | 46,085 | 74,049 | 77,055 | 58,850 | 178,984 |
| New Jersey | 11,007 | 21,044 | 21,695 | 20,448 | 52,499 | 13,930 | 22,345 | 23,113 | 21,025 | 57,300 |
| Pennsylvania | 30,746 | 71,633 | 74,325 | 67,335 | 169,714 | 37,274 | 78,618 | 82,887 | 68,647 | 184,539 |
| Delaware | 4,133 | 9,097 | 9,456 | 9,704 | 22,934 | 4,915 | 9,212 | 9,632 | 9,808 | 23,935 |
| District of Columbia | 223 | 284 | 302 | 161 | 668 | 276 | 329 | 347 | 171 | 776 |
| Maryland | 12,684 | 29,424 | 31,077 | 27,322 | 69,430 | 15,357 | 30,447 | 32,587 | 27,744 | 73,548 |
| West Virginia | 2,955 | 7,881 | 8,382 | 6,844 | 17,680 | 3,597 | 9,243 | 9,843 | 6,968 | 19,808 |
| Middle Atlantic | 98,175 | 205,780 | 214,176 | 188,948 | 492,903 | 121,434 | 224,243 | 235,464 | 193,213 | 538,890 |
| Virginia | 26,353 | 68,459 | 73,016 | 69,249 | 164,061 | 39,203 | 71,517 | 76,580 | 72,128 | 182,848 |
| North Carolina | 54,102 | 113,699 | 122,564 | 127,056 | 294,857 | 110,625 | 117,244 | 126,373 | 134,532 | 362,401 |
| South Carolina | 21,691 | 52,923 | 56,693 | 53,614 | 128,228 | 57,584 | 55,511 | 59,533 | 63,165 | 176,260 |
| Georgia | 43,648 | 106,002 | 112,079 | 112,823 | 262,473 | 100,170 | 110,126 | 117,710 | 116,924 | 327,220 |
| Florida | 77,841 | 87,529 | 106,663 | 116,833 | 282,203 | 103,766 | 92,494 | 115,170 | 121,183 | 317,443 |
| South Atlantic | 223,635 | 428,612 | 471,015 | 479,575 | 1,131,822 | 411,348 | 446,892 | 495,366 | 507,932 | 1,366,172 |
| Ohio | 53,656 | 137,188 | 143,523 | 126,110 | 316,954 | 71,184 | 145,674 | 154,664 | 131,784 | 348,642 |
| Indiana | 51,996 | 143,748 | 148,352 | 135,051 | 330,795 | 96,682 | 155,310 | 166,009 | 177,989 | 429,981 |
| Illinois | 37,597 | 84,352 | 88,012 | 79,689 | 201,638 | 96,672 | 137,830 | 294,287 | 140,090 | 374,592 |
| Michigan | 34,468 | 92,623 | 96,179 | 86,767 | 213,858 | 47,433 | 96,773 | 101,641 | 91,723 | 235,929 |
| Wisconsin | 17,488 | 64,477 | 67,321 | 80,107 | 162,072 | 26,193 | 67,289 | 71,107 | 86,604 | 180,086 |
| East North Central | 195,205 | 522,388 | 543,387 | 507,724 | 1,225,317 | 338,164 | 602,876 | 787,708 | 628,190 | 1,569,230 |
| Minnesota | 19,257 | 69,307 | 71,489 | 47,644 | 136,208 | 49,448 | 93,178 | 96,234 | 55,017 | 197,643 |
| Iowa | 23,357 | 63,548 | 66,231 | 43,609 | 130,514 | 65,391 | 92,835 | 98,230 | 52,002 | 210,228 |
| Missouri | 38,347 | 56,821 | 59,460 | 49,519 | 144,687 | 83,943 | 71,762 | 135,240 | 60,706 | 216,411 |
| North Dakota | 4,043 | 8,807 | 9,049 | 1,672 | 14,522 | 12,923 | 36,483 | 37,106 | 1,674 | 51,080 |
| South Dakota | 1,416 | 2,443 | 2,612 | 144 | 4,003 | 6,362 | 7,607 | 7,926 | 160 | 14,129 |
| Nebraska | 3,419 | 7,288 | 7,380 | 1,299 | 12,006 | 94,154 | 19,800 | 20,369 | 1,520 | 115,474 |
| Kansas | 7,803 | 16,555 | 17,038 | 3,445 | 27,803 | 39,497 | 37,524 | 38,638 | 4,053 | 81,074 |
| West North Central | 97,642 | 224,769 | 233,259 | 147,332 | 469,743 | 351,718 | 359,189 | 433,743 | 175,132 | 886,039 |
| Kentucky | 22,730 | 52,026 | 56,267 | 53,281 | 128,037 | 37,934 | 61,013 | 68,564 | 60,880 | 159,827 |
| Tennessee | 22,779 | 48,714 | 52,431 | 46,524 | 118,017 | 42,907 | 55,609 | 59,884 | 53,887 | 152,403 |
| Alabama | 25,038 | 77,622 | 82,903 | 71,803 | 174,463 | 72,059 | 86,546 | 92,937 | 76,957 | 235,562 |
| Mississippi | 15,665 | 25,469 | 27,365 | 21,126 | 62,260 | 108,320 | 39,834 | 43,816 | 29,836 | 177,990 |
| East South Central | 86,212 | 203,831 | 218,966 | 192,734 | 482,777 | 261,220 | 243,002 | 265,201 | 221,560 | 725,782 |
| Arkansas | 9,215 | 20,761 | 21,777 | 19,037 | 49,013 | 52,621 | 26,290 | 27,553 | 33,180 | 112,091 |
| Louisiana | 10,336 | 20,037 | 21,131 | 16,974 | 47,347 | 53,832 | 23,404 | 25,772 | 18,790 | 96,026 |
| Oklahoma | 4,746 | 10,598 | 11,029 | 4,289 | 19,633 | 9,900 | 20,551 | 22,134 | 4,583 | 35,034 |
| Texas | 24,429 | 46,348 | 48,371 | 22,934 | 93,711 | 144,523 | 84,756 | 90,880 | 24,612 | 253,891 |
| West South Central | 48,726 | 97,744 | 102,308 | 63,234 | 209,704 | 260,876 | 155,001 | 166,339 | 81,165 | 497,042 |
| Montana | 620 | 932 | 969 | 60 | 1,612 | 4,458 | 11,964 | 12,336 | 93 | 16,515 |
| Idaho | 1,484 | 1,616 | 1,684 | 198 | 3,298 | 21,987 | 13,985 | 14,819 | 821 | 36,793 |
| Wyoming | 187 | 287 | 304 | 28 | 502 | 2,811 | 3,020 | 3,088 | 32 | 5,863 |
| Colorado | 1,741 | 2,630 | 2,790 | 1,101 | 5,472 | 18,235 | 14,350 | 14,649 | 1,415 | 34,000 |
| New Mexico | 333 | 564 | 590 | 119 | 1,016 | 8,551 | 7,559 | 7,776 | 202 | 16,312 |
| Arizona | 4,384 | 5,934 | 6,164 | 1,266 | 11,584 | 48,440 | 20,160 | 20,607 | 1,831 | 70,431 |
| Utah | 372 | 628 | 672 | 204 | 1,204 | 7,592 | 6,547 | 6,764 | 238 | 14,377 |
| Nevada | 233 | 240 | 249 | 60 | 533 | 926 | 924 | 959 | 74 | 1,924 |
| Mountain | 9,354 | 12,831 | 13,422 | 3,036 | 25,221 | 113,000 | 78,509 | 80,998 | 4,706 | 196,215 |
| Washington | 4,270 | 6,656 | 6,920 | 4,036 | 14,962 | 66,329 | 17,376 | 17,969 | 6,326 | 90,031 |
| Oregon | 2,815 | 4,598 | 4,762 | 2,442 | 9,855 | 39,505 | 12,606 | 13,088 | 3,551 | 55,662 |
| California | 33,238 | 34,730 | 35,500 | 19,870 | 87,838 | 3/ 238,586 | 4/ 85,920 | 4/ 87,793 | 5/ 30,856 | 355,362 |
| Pacific | 40,323 | 45,984 | 47,182 | 26,348 | 112,655 | 344,420 | 115,902 | 118,850 | 40,733 | 501,055 |
| Total | 825,943 | 1,785,302 | 1,888,645 | 1,654,145 | 4,265,390 | 2,233,416 | 2,276,335 | 2,636,304 | 1,899,505 | 6,409,256 |
| Hawaii | 7,556 | 3,409 | 3,560 | 11,144 | 22,109 | 17,917 | 6,297 | 7,324 | 16,834 | 41,048 |
| Puerto Rico | 21,705 | 9,879 | 11,247 | 18,621 | 50,205 | 33,026 | 10,258 | 11,631 | 18,799 | 62,083 |
| United States: | | | | | | | | | | |
| 1957-58 | 855,204 | 1,798,590 | 1,903,452 | 1,683,910 | 4,337,704 | 6/ 2,284,359 | 7/ 2,292,890 | 8/ 2,655,259 | 1,935,138 | 6,512,387 |
| 1956-57 | 843,626 | 9/ 1,817,626 | 10/ 1,926,774 | 11/ 1,681,121 | 4,342,373 | 2,135,287 | 9/ 2,304,992 | 9/ 2,669,942 | 11/ 1,936,923 | 6,377,202 |
| 1955-56 | 796,673 | 1,785,073 | 1,897,790 | 1,654,952 | 4,236,698 | 1,933,342 | 2,247,420 | 2,643,418 | 1,874,718 | 6,055,480 |

1/ Including 2 percent of the colloidal phosphate and 3 percent of the phosphate rock marketed for direct application. 2/ Including an average of 21.71 percent of the colloidal phosphate and 31.68 percent of the phosphate rock marketed for direct application. Including an estimated: 3/ 3,426 tons, 4/ 3,153 tons, and 5/ 6,763 tons marketed as dried manures. Including: 6/ 976 tons, 7/ 6,445 tons, and 8/ 6,578 tons in materials distributed by Government agencies for test demonstrations. 9/ Revised by addition of 1,001 tons in North Dakota. 10/ Revised by addition of 360 tons in Kansas and 1,001 tons in North Dakota. 11/ Revised by subtraction of 1,340 tons in Pennsylvania.

Table 12. - Change in consumption of primary nutrients, year ended June 30, 1958, compared with preceding year

Tons

| State and region | Mixtures | | | | | Materials | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | N | $P_2O_5$ | | $K_2O$ | Total (N, avail. $P_2O_5$, and $K_2O$) | N | $P_2O_5$ | | $K_2O$ | Total (N, avail. $P_2O_5$, and $K_2O$) |
| | | Available | Total | | | | Available | Total | | |
| Maine | 1,594 | 1,275 | 1,187 | 1,308 | 4,177 | -878 | 348 | 351 | 12 | -518 |
| New Hampshire | 104 | 68 | 72 | 81 | 253 | -125 | 29 | 38 | 29 | -67 |
| Vermont | 338 | 174 | 183 | 196 | 708 | 57 | -167 | -172 | 14 | -96 |
| Massachusetts | 228 | 312 | 308 | -567 | -27 | 119 | -73 | -88 | -59 | -13 |
| Rhode Island | 72 | 13 | -2 | 1 | 86 | 11 | -4 | -52 | -15 | -8 |
| Connecticut | -134 | -497 | -528 | -210 | -841 | 182 | -121 | -149 | -66 | -5 |
| New England | 2,202 | 1,345 | 1,220 | 809 | 4,356 | -634 | 12 | -72 | -85 | -707 |
| New York | 3,859 | 5,426 | 4,083 | 6,764 | 16,049 | 1,612 | -1,157 | -1,231 | 377 | 832 |
| New Jersey | -2,402 | -4,981 | -5,118 | -4,856 | -12,239 | 95 | -253 | -265 | 50 | -108 |
| Pennsylvania | 261 | 2,394 | 2,434 | 811 | 3,466 | 1,064 | -783 | -458 | 114 | 395 |
| Delaware | -118 | -599 | -654 | -623 | -1,340 | -76 | -120 | -122 | -125 | -321 |
| District of Columbia | 117 | 106 | 112 | 70 | 293 | 13 | 10 | 7 | 4 | 27 |
| Maryland | 44 | -1,543 | -1,631 | -1,255 | -2,754 | 455 | -119 | -140 | -37 | 299 |
| West Virginia | -303 | -806 | -846 | -879 | -1,988 | -105 | -80 | -54 | 38 | -147 |
| Middle Atlantic | 1,458 | -3 | -1,620 | 32 | 1,487 | 3,058 | -2,502 | -2,263 | 421 | 977 |
| Virginia | -488 | -5,486 | -5,921 | -3,790 | -9,764 | -760 | 417 | 634 | 38 | -305 |
| North Carolina | 2,891 | -2,339 | -2,499 | 6,498 | 7,050 | -6,101 | -404 | -545 | -506 | -7,011 |
| South Carolina | -851 | -3,258 | -3,546 | -1,245 | -5,354 | -6,947 | -1,026 | -1,166 | -2,651 | -10,624 |
| Georgia | -6,989 | -3,112 | -3,564 | 719 | -9,382 | 8,303 | 425 | 1,677 | -203 | 8,525 |
| Florida | 794 | -3,223 | -3,723 | 4,078 | 1,649 | 3,538 | 1,554 | -2,605 | 671 | 5,763 |
| South Atlantic | -4,643 | -17,418 | -19,253 | 6,260 | -15,801 | -1,967 | 966 | -2,005 | -2,651 | -3,652 |
| Ohio | 2,908 | 671 | 245 | -3,058 | 521 | 3,723 | 1,050 | 2,062 | 1,593 | 6,366 |
| Indiana | 2,261 | -1,370 | -1,703 | -3,763 | -2,872 | 9,939 | 1,390 | 1,349 | 4,878 | 16,207 |
| Illinois | 3,838 | 6,813 | 7,075 | 5,746 | 16,397 | 12,544 | 4,021 | 5,381 | 1,907 | 18,472 |
| Michigan | -1,188 | 2,651 | 2,743 | 1,236 | 2,699 | 2,137 | 523 | 873 | 2,764 | 5,424 |
| Wisconsin | 1,262 | 1,594 | 2,314 | 4,261 | 7,117 | 2,483 | 294 | 85 | 918 | 3,695 |
| East North Central | 9,081 | 10,359 | 10,674 | 4,422 | 23,862 | 30,826 | 7,278 | 9,750 | 12,060 | 50,164 |
| Minnesota | 776 | -2,029 | -1,649 | -1,912 | -3,165 | 10,406 | 1,235 | 1,307 | 1,949 | 13,590 |
| Iowa | 2,662 | 7,115 | 7,366 | 2,801 | 12,578 | 12,245 | 4,911 | 4,148 | 2,608 | 19,764 |
| Missouri | 267 | -7,896 | -8,117 | -6,159 | -13,788 | 477 | -76 | 2,481 | -2,331 | -1,930 |
| North Dakota | 630 | -474 | -469 | 62 | 218 | 3,835 | 8,099 | 8,236 | -14 | 11,920 |
| South Dakota | 322 | 47 | 62 | -15 | 354 | 2,525 | 1,026 | 1,040 | 10 | 3,561 |
| Nebraska | 950 | 1,726 | 1,747 | 246 | 2,922 | 30,188 | -3,426 | -3,428 | -29 | 26,733 |
| Kansas | -884 | -2,624 | -2,700 | -898 | -4,406 | 2,647 | -3,212 | -3,316 | -298 | -863 |
| West North Central | 4,723 | -4,135 | -3,760 | -5,875 | -5,287 | 62,323 | 8,557 | 10,468 | 1,895 | 72,775 |
| Kentucky | 1,356 | 249 | 187 | 669 | 2,274 | 986 | -2,124 | -2,865 | -624 | -1,762 |
| Tennessee | -176 | -1,941 | -2,069 | -1,746 | -3,863 | -5,572 | -749 | -677 | -606 | -6,927 |
| Alabama | -2,842 | -6,193 | -6,661 | -1,255 | -10,290 | -3,604 | -957 | -1,448 | -623 | -5,184 |
| Mississippi | -2,339 | -4,357 | -4,673 | -4,573 | -11,269 | -14,021 | -3,378 | -3,749 | -5,534 | -22,933 |
| East South Central | -4,001 | -12,242 | -13,216 | -6,905 | -23,148 | -22,211 | -7,208 | -8,739 | -7,387 | -36,806 |
| Arkansas | 95 | 688 | 677 | 151 | 934 | -5,992 | -2,033 | -2,089 | -3,936 | -11,961 |
| Louisiana | -61 | -2,396 | -2,451 | 308 | -2,149 | 740 | -369 | -206 | -1,582 | -1,211 |
| Oklahoma | -211 | -169 | -200 | -74 | -454 | 143 | 382 | 653 | 33 | 558 |
| Texas | 2,124 | 341 | 421 | 1,361 | 3,826 | 33,001 | -3,304 | -1,731 | 511 | 30,208 |
| West South Central | 1,947 | -1,536 | -1,553 | 1,746 | 2,157 | 27,892 | -5,324 | -3,373 | -4,974 | 17,594 |
| Montana | 187 | 135 | 138 | 16 | 338 | -1,638 | -347 | -364 | -1 | -1,986 |
| Idaho | 81 | 108 | -35 | -16 | 173 | 7,514 | 1,005 | 1,623 | 489 | 9,008 |
| Wyoming | 24 | 47 | 49 | -4 | 67 | 780 | 110 | 106 | -15 | 875 |
| Colorado | 440 | 520 | 559 | 310 | 1,270 | 6,262 | 1,321 | 1,317 | -132 | 7,451 |
| New Mexico | 145 | 314 | 324 | 64 | 523 | 349 | -523 | -555 | -26 | -200 |
| Arizona | 956 | 1,755 | 1,810 | 432 | 3,143 | 5,690 | 2,885 | 2,917 | -140 | 8,435 |
| Utah | -153 | -82 | -90 | 17 | -218 | 2,551 | 933 | 911 | -3 | 3,481 |
| Nevada | 120 | 97 | 96 | -6 | 211 | 134 | 372 | 387 | 12 | 518 |
| Mountain | 1,800 | 2,894 | 2,851 | 813 | 5,507 | 21,642 | 5,756 | 6,342 | 184 | 27,582 |
| Washington | 1,188 | 1,958 | 2,010 | 824 | 3,970 | 21,200 | 3,722 | 3,820 | 482 | 25,404 |
| Oregon | 281 | -160 | -170 | -175 | -54 | -2,979 | -2,090 | -2,054 | 1 | -5,068 |
| California | 3,028 | 5,973 | 5,981 | 4,073 | 13,074 | 12,290 | -409 | -931 | -7 | 11,874 |
| Pacific | 4,497 | 7,771 | 7,821 | 4,722 | 16,990 | 30,511 | 1,223 | 835 | 476 | 32,210 |
| Total | 17,064 | -12,965 | -16,830 | 6,024 | 10,123 | 151,440 | 8,758 | 10,943 | -61 | 160,137 |
| Hawaii | -129 | -2,411 | -2,461 | 13 | -2,527 | -12,551 | -1,657 | -2,137 | -4,573 | -18,781 |
| Puerto Rico | -5,357 | -3,660 | -4,025 | -3,248 | -12,265 | -1,395 | -167 | -167 | 60 | -1,502 |
| United States | 11,578 | -19,036 | -23,322 | 2,789 | -4,669 | 137,494 | 6,934 | 8,639 | -4,574 | 139,854 |

51 areas (table 12). In 12 areas, however, the increase in the quantity of a nutrient supplied by either a mixture or a material was sufficiently high to offset the decrease in that nutrient in the other category. In the other 34 areas the decrease in the nutrient in one category was not offset by an increase in the other category. Nitrogen decreased in 15 such areas, available $P_2O_5$ in 26, and $K_2O$ in 23. Most were in the southeastern part of the country.

The national use of nitrogen increased 149,072 tons, of which 11,578 tons (7.8 percent) were supplied by mixtures and 137,494 tons (92.2 percent) by materials. The increase in nitrogen was largest in the West North Central region, followed by the East North Central and Pacific regions, while the largest decrease was in the East South Central region.

The national use of available $P_2O_5$ decreased 12,102 tons. The quantity in mixtures decreased 19,036 tons, while that in materials increased 6,934 tons. The decreased use in mixtures was largely in the South Atlantic and East South Central regions. While there were variations in the changes in the other areas, the principal increases for mixtures were in the East North Central and Pacific regions and for materials in the East and West North Central and the Mountain regions.

The national use of $K_2O$ decreased 1,785 tons. The use in mixtures increased 2,789 tons while that in materials decreased 4,574 tons. The higher consumption of $K_2O$ in mixtures chiefly in the South Atlantic, East North Central, and Pacific regions more than offset its lower use in other areas, notably the West North Central and East South Central regions and Puerto Rico. Its use in direct application materials was generally lower in the southeastern part of the country while only in the East North Central region were increases shown in all of the States.

The quantities of primary nutrients in the principal kinds of fertilizers used in 1957-58 are shown by regions in table 13. Seventy-seven percent of the national consumption of nitrogen was in four commodities—N-P-K mixtures, anhydrous ammonia, ammonium nitrate, and ammonium sulfate—which supplied, respectively; 34.2, 21.0, 16.5, and 5.3 percent. These four commodities accounted for 61 percent (Pacific) to 92 percent (Middle Atlantic) of the regional consumptions. In the Pacific region aqua ammonia supplied a large part of the nitrogen, while in the Middle Atlantic region 80 percent of the nitrogen was in N-P-K mixtures.

More than 76 percent of the national consumption of available $P_2O_5$ was in two commodities—N-P-K mixtures and superphosphate grades over 22 percent $P_2O_5$—which supplied, respectively, 68.8 and 7.4 percent. They supplied 39 percent (Pacific) to 91 percent (South Atlantic) of the regional consumptions. Ammoniated phosphates supplied an important part of the $P_2O_5$ in the western part of the country.

N-P-K mixtures supplied more than 76 percent of the national consumption of $K_2O$. The regional proportions ranged from 61 to 86 percent.

Table 13. - Primary plant nutrients consumed in regions and United States as mixtures and as direct-application materials, by kinds, year ended June 30, 1958

Tons

| Kind | New England | Middle Atlantic | South Atlantic | East North Central | West North Central | East South Central | West South Central | Mountain | Pacific | Hawaii and Puerto Rico | United States |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Nitrogen | | | | | |
| MIXTURES: N-P-K | 26,670 | 98,147 | 198,257 | 191,508 | 80,363 | 85,126 | 45,021 | 4,149 | 28,763 | 24,172 | 782,176 |
| N-P | 1 | 16 | 24 | 3,657 | 17,265 | 651 | 3,704 | 5,193 | 11,368 | 121 | 42,000 |
| N-K | 0 | 12 | 25,354 | 40 | 14 | 435 | 1 | 12 | 192 | 4,968 | 31,028 |
| MATERIALS: | | | | | | | | | | | |
| Ammonia, anhydrous | 0 | 2,040 | 20,669 | 46,921 | 114,200 | 42,554 | 114,880 | 35,101 | 102,110 | 634 | 479,109 |
| " , aqua | 0 | 0 | 170 | 556 | 1,894 | 9 | 1,618 | 5,394 | 57,824 | 5,877 | 73,342 |
| Ammonium nitrate | 1,603 | 10,706 | 46,042 | 46,329 | 82,097 | 95,997 | 35,832 | 23,712 | 34,371 | 0 | 376,689 |
| Ammonium nitrate-limestone mixtures | 34 | 453 | 46,591 | 417 | 36 | 6,369 | 110 | 736 | 12 | 0 | 54,758 |
| Ammonium sulfate | 109 | 931 | 2,451 | 20,279 | 2,468 | 2,469 | 20,556 | 13,289 | 46,980 | 11,029 | 120,561 |
| Bonemeal: raw and steamed | 42 | 118 | 35 | 47 | 8 | 8 | 13 | 1/ | 56 | 0 | 327 |
| Calcium cyanamide | 288 | 1,890 | 1,886 | 214 | 39 | 2,007 | 1,341 | 247 | 1,825 | 0 | 9,737 |
| Calcium nitrate | 1/ | 1/ | 1,569 | 18 | 0 | 23 | 20 | 1,866 | 5,351 | 17 | 8,864 |
| Natural organics | 1,385 | 1,731 | 1,220 | 2,077 | 607 | 90 | 335 | 345 | 5,469 | 7 | 13,266 |
| Nitrogen solutions | 273 | 1,397 | 23,856 | 17,731 | 29,383 | 2,997 | 7,302 | 1,862 | 15,096 | 0 | 99,897 |
| Phosphate products | 0 | 76 | 331 | 2,050 | 21,432 | 742 | 13,648 | 12,208 | 22,438 | 395 | 73,320 |
| Potassium products | 24 | 1 | 1,979 | 6 | 0 | 187 | 3 | 0 | 3 | 0 | 2,203 |
| Sodium nitrate | 253 | 1,663 | 39,039 | 224 | 46 | 20,998 | 7,952 | 80 | 62 | 22 | 70,339 |
| Urea | 490 | 1,663 | 1,734 | 5,419 | 1,726 | 548 | 8,462 | 8,655 | 12,316 | 3,701 | 44,714 |
| Other chemical nitrogen products | 64 | 590 | 141 | 671 | 140 | 10 | 78 | 151 | 184 | 0 | 2,029 |
| Total nitrogen | 31,236 | 121,434 | 411,348 | 338,164 | 351,718 | 261,220 | 260,876 | 113,000 | 344,420 | 50,943 | 2,284,359 |
| | | | | | | Available $P_2O_5$ | | | | | |
| MIXTURES: N-P-K | 37,640 | 185,669 | 406,202 | 463,771 | 171,123 | 175,771 | 84,155 | 6,342 | 33,668 | 12,236 | 1,576,577 |
| N-P | 3 | 44 | 17 | 16,340 | 38,728 | 680 | 7,467 | 6,338 | 11,814 | 493 | 81,924 |
| P-K | 5,720 | 20,067 | 22,393 | 42,277 | 14,918 | 27,380 | 6,122 | 151 | 502 | 559 | 140,089 |
| MATERIALS: | | | | | | | | | | | |
| Ammonium phosphate: 11-48 | 0 | 229 | 22 | 4,706 | 21,966 | 5 | 1,688 | 4,472 | 6,829 | 532 | 40,449 |
| " " 13-39 | 0 | 0 | 0 | 87 | 7,263 | 9 | 5,803 | 2,264 | 2,421 | 0 | 17,847 |
| Ammonium phosphate sulfate: 16-20 | 0 | 0 | 0 | 193 | 15,569 | 15 | 13,895 | 9,752 | 21,374 | 52 | 60,850 |
| Ammonium phosphate nitrate: 27-14 | 0 | 0 | 0 | 0 | 465 | 0 | 0 | 670 | 1,473 | 0 | 2,608 |
| Basic slag | 0 | 0 | 1,554 | 0 | 0 | 10,028 | 273 | 0 | 0 | 0 | 11,855 |
| Bonemeal: raw and steamed | 385 | 1,074 | 322 | 531 | 59 | 81 | 86 | 1/ | 493 | 0 | 3,031 |
| Calcium metaphosphate | 0 | 371 | 1,539 | 7,298 | 9,779 | 8,800 | 532 | 169 | 16 | 0 | 28,504 |
| Diammonium phosphate: 21-53 | 0 | 61 | 837 | 2,062 | 2,972 | 1,876 | 1,624 | 4,213 | 554 | 603 | 14,802 |
| Natural organics | 674 | 968 | 559 | 1,534 | 603 | 63 | 286 | 260 | 4,505 | 4 | 9,456 |
| Phosphate rock and colloidal phosphate | 8 | 227 | 552 | 16,978 | 6,518 | 422 | 550 | 5 | 39 | 84 | 25,383 |
| Phosphoric acid | 0 | 0 | 0 | 0 | 0 | 0 | 863 | 5,762 | 5,574 | 0 | 12,199 |
| Potassium products | 10 | 0 | 35 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 45 |
| Superphosphate: 22% and under | 6,120 | 14,184 | 9,728 | 11,956 | 8,362 | 14,847 | 12,041 | 3,137 | 13,715 | 1,192 | 95,282 |
| " over 22% | 47 | 1,349 | 2,658 | 35,143 | 60,864 | 2,961 | 19,616 | 34,974 | 12,436 | 800 | 170,848 |
| Other phosphate products | 114 | 0 | 474 | 0 | 0 | 64 | 0 | 0 | 489 | 0 | 1,141 |
| Total available $P_2O_5$ | 50,721 | 224,243 | 446,892 | 602,876 | 359,189 | 243,002 | 155,001 | 78,509 | 115,902 | 16,555 | 2,292,890 |
| | | | | | | $K_2O$ | | | | | |
| MIXTURES: N-P-K | 37,990 | 166,819 | 415,433 | 450,882 | 133,161 | 164,946 | 57,510 | 2,937 | 25,719 | 21,897 | 1,477,294 |
| P-K | 7,224 | 22,116 | 33,834 | 56,799 | 14,154 | 27,190 | 5,723 | 96 | 479 | 895 | 168,510 |
| N-K | 0 | 13 | 30,308 | 43 | 17 | 598 | 1 | 3 | 150 | 6,973 | 38,106 |
| MATERIALS: | | | | | | | | | | | |
| Lime-potash mixtures | 0 | 5 | 1,268 | 0 | 0 | 380 | 0 | 0 | 0 | 0 | 1,653 |
| Manure salts | 0 | 1 | 90 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 98 |
| Natural organics | 295 | 360 | 196 | 528 | 231 | 24 | 84 | 63 | 7,075 | 1 | 8,857 |
| Potassium chloride | 1,091 | 2,902 | 21,507 | 117,337 | 27,490 | 24,800 | 17,398 | 1,000 | 3,652 | 4,741 | 221,918 |
| " magnesium sulfate | 16 | 306 | 449 | 759 | 78 | 251 | 269 | 9 | 59 | 1 | 2,197 |
| " sodium nitrate | 0 | 1 | 1,993 | 6 | 0 | 160 | 2 | 0 | 0 | 0 | 2,162 |
| " sulfate | 58 | 685 | 2,641 | 1,701 | 1 | 3,211 | 61 | 598 | 3,569 | 1,125 | 13,650 |
| Other potassium products | 200 | 5 | 213 | 135 | 0 | 0 | 110 | 0 | 30 | 0 | 693 |
| Total $K_2O$ | 46,874 | 193,213 | 507,932 | 628,190 | 175,132 | 221,560 | 81,165 | 4,706 | 40,733 | 35,633 | 1,935,138 |
| GRAND TOTAL: N, avail. $P_2O_5$, $K_2O$ | 128,831 | 538,890 | 1,366,172 | 1,569,230 | 886,039 | 725,782 | 497,042 | 196,215 | 501,055 | 103,131 | 6,512,387 |

1/ Less than 0.5 ton.

## CORRECTIONS

Page 6. - The number of grades reported
Reads 2,156
Should read 1,698

Page 8. - The number of grades under 2,500 tons each
Reads 1,817
Should read 1,359

Table 4. - Footnote 8
Reads 1,817
Should read 1,359
Footnote 11
Reads 2,043
Should read 1,585

Table 5. - Number of grades in Florida
Reads 1,366
Should read 997
Number of grades in South Atlantic region
Reads 1,387
Should read 1,036
Number of grades in United States
Reads 2,028
Should read 1,570